

HEALTHY PANCREAS, HEALTHY YOU

Part II

HEALING FOOD IN THE DIGESTIVE (PANCREATIC) AND METABOLIC DISORDERS

For patients and health practitioners

Peter Melamed, PhD

Felix Melamed, LAc, MSTCM, CHt

E-book version of **HEALTHY PANCREAS, HEALTHY YOU** consist of three interrelated parts:

Part I STRUCTURE, FUNCTION AND DISORDERS OF THE PANCREAS

Part II HEALING FOOD IN THE DIGESTIVE (PANCREATIC) AND METABOLIC DISORDERS

Part III HOW TO IMPROVE THE EXOCRINE PANCREATIC FUNCTION, POSTPONE PANCREATIC DETERIORATION, AND HEAL DIGESTIVE (PANCREATIC) DISORDERS

References

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<http://www.biotherapy-clinic.com/>

E-mail: info@biotherapy-clinic.com

As a pampered pet or as a lurked panther, it built its head in the bend of duodenum. It sprawled its delicate body on the aorta and aorta lullabies it by rhythmic pulsation movements. It carelessly put its slightly curved tail in the spleens gate. Yes, it is as a beautiful predator, which, when disease strikes, can unexpectedly cause irreparable injury. This is your pancreas, is beautiful as the angel of heaven, but can be as daemon deceptive and evil. Your pancreas is a hard worker, an organ of many talents and tasks. Save it, help it, heal it.

Authors

CONTENTS

FOREWORD

Part I

STRUCTURE, FUNCTION AND DISORDERS OF THE PANCREAS

Chapter 1-Pancreas. Explanation of Pancreatic Structure and Function

Chapter 2-Composition of Pancreatic Juice

Chapter3 -Decreased Exocrine Pancreatic Function. What are the pancreatic enzymes?

- a. Pancreatic digestive enzymes
- b. Factors Affecting Pancreatic Digestive Enzyme Activity
- c. Insufficiency and deficiency of pancreatic amylase
- d. Insufficiency and deficiency of pancreatic protease
- e. Insufficiency and deficiency of pancreatic lipase
- f. Three stages of Decreasing of Exocrine Pancreatic Function are
“*Acidic pancreas and bile*”, “*Pancreatic Deficiency*,” and “*Pancreatic failure*”
- g. Exocrine Pancreatic Deficiency

Chapter 4-Acidity Kills the Pancreas

- a. Four *Acidic Pancreas and Bile* Problems
- b. Pancreas and Acidity
- c. Acidity vs. Alkalinity
- d. Buffers
- e. The Importance of Bicarbonate
- f. Various Research With Bicarbonate
- g. Trypsinogen Activity
- h. Flushing inactive pancreatic enzymes prevent their premature activation
- i. Acidification of Bile and Bile Refluxes
- j. The Antimicrobial Activity of Pancreatic Juice
- k. What Happens to the Pancreas if the Blood Becomes Acidic?

Chapter 5-The Pancreas, Liver, and Bile – Counterparts or Huge Enemies

- a. Anatomy and Physiology
- b. Bile
- c. Pancreas and Bile Similarities
- d. Pancreas and Bile Antagonistic Relationship

- e. The vital components of bile are bile acids and bile salts

Chapter 6-Development of Pancreatic Disorders

- a. Well-Organized Regulation
- b. Normal Structure and Function of the Pancreatic Gland
- d. Efficient Supply of Water, Minerals, Trace Elements, Bicarbonates, and Vitamins

Chapter 7-Biotherapy Functional Clinical Classification of Exocrine Pancreatic Disorders

- I. Acidic pancreas (usually combines with acidic bile)
- II. Pancreatic Deficiency
- III. Pancreatic failure

DISEASES AND DISORDERS WITH DECREASING OF EXOCRINE PANCREATIC FUNCTION

Chapter 8-Pancreas and the Sphincter of Oddi Dysfunction (SOD)

- a. The Pancreas and the Sphincter of Oddi
- b. The Gallbladder and the Sphincter of Oddi
- c. Sphincter of Oddi Dysfunction (SOD)
- d. How Does the Sphincter of Oddi Dysfunction Occur?
- e. Symptoms of Sphincter of Oddi Dysfunction
- f. Who is affected by SOD?

Chapter 9-Pancreatitis, Acute Pancreatitis

- a. History of Pancreatitis
- b. Frequency and Epidemiology of Pancreatitis

Chapter 10-Chronic Pancreatitis

- a. History of Chronic Pancreatitis
- b. Chronic Pancreatitis Definition
- c. Who is at Risk for Chronic Pancreatitis?
- d. Classifications of Chronic Pancreatitis
- e. Signs and Symptoms of Chronic Pancreatitis

- i. Pain
- ii. Exocrine Pancreatic Deficiency
- iii. Endocrine Pancreatic Deficiency/Diabetes
- f. Chronic Pancreatitis Complications
- g. What are the Consequences of Chronic Pancreatitis?

Chapter 11-Alcoholic Pancreatitis

- a. Males vs. Females
- b. Research
- c. Harmful Effects of Alcohol on the Pancreas
- d. Alcohol and Pancreatic Enzymes
- e. Alcohol and Candida
- f. Alcohol and Pancreatitis
- g. Alcohol and Acidity
- h. Alcohol and Toxicity
- i. Environmental Factors and Life Style
- j. Who Is an Alcoholic and How Does Alcoholism Develop?

Chapter 12- Biliary Pancreatitis

- a. Biomechanical and Biochemical Bile Problems
- b. Basis of Biliary Pancreatitis
- c. Bile and Acidity
- d. Gallstones and Exocrine Pancreatic Deficiency Disorders

Chapter 13-Chronic Pancreatitis, Pancreatic Cancer

- a. Who is at Risk for Pancreatic Cancer?
- b. Chronic Pancreatitis Connection
- c. Acidity Plays the Crucial Role in Pancreatic Cancer
- d. Possible Role of the Dysbiosis (Candida-Yeast Overgrowth, SIBO) in Pancreatic Cancer
- e. Alcohol Connection

THE ROLE OF EXOCRINE PANCREATIC DEFICIENCY IN OTHER GASTROINTESTINAL AND METABOLIC DISORDERS

Chapter 14-Functional Dyspepsia and Irritable Bowel Syndrome (IBS)

- a. Dyspepsia
- b. Irritable Bowel Syndrome (IBS)
- c. Prevalence of the Functional Dyspepsia
- d. Functional Dyspepsia and Irritable Bowel Syndrome (IBS)
- e. Functional Dyspepsia, Irritable Bowel Syndrome, and the Pancreas
- f. Functional Dyspepsia, Irritable Bowel Syndrome, and the Bile
- g. Patients with IBS may present one of three clinical variants
- h. Functional Dyspepsia, Irritable Bowel Syndrome, and Dysbiosis

Chapter 15-Intestinal Dysbiosis: Candida-yeast Overgrowth, Small Intestine Bacterial Overgrowth (SIBO)

- a. What Is Candida?
- b. What is Dysbiosis?
- c. How Does Dysbiosis Effect Pancreatic Health?
- d. Typical Chronic Candidiasis Patient Profile
- e. Candida-yeast overgrowth can totally disrupt digestion in many ways
 - I. Toxic Yeast Metabolites Directly Influence on Pancreatic Function and Digestive Enzymes
 - II. Causing chronic body acidity
 - III. Promoting Leaky Gut Syndrome
 - IV. Decreasing Immune System Function
 - V. Promoting Small Intestine Bacterial Overgrowth (SIBO)
- f. Control of Microorganisms in the GI tract
- g. How Does Small Intestinal Bacterial Overgrowth (SIBO) Occur?
- h. Candidiasis
- i. Why Are Dysbiosis and Candida-Yeast Overgrowth Prevalent Conditions in the Modern World?
- j. What Do Dysbiosis and Candida-Yeast Overgrowth Cause in the Human Organism?
- k. Undetected Candidiasis
- l. Small Intestine Bacterial Overgrowth (SIBO)
- m. The Harmful Effect of Dysbiosis on Exocrine Pancreatic Function and Digestion
- n. Dysbiosis triggers low exocrine pancreatic function

- i. Link Between Dysbiosis, the Decreased Activity of Pancreatic Digestive Enzymes Inside the Small Intestine and Subsequent Indigestion
- ii. Deficiency of the Vital Nutrients in Dysbiosis
- iii. Dysbiosis and Body Acidification
- iv. Candida, Alcohol and Acetaldehyde - Toxic Substances for Pancreatic Cells
- v. Candida and Chronic Pancreatic Inflammation
- vi. Candida and Pancreatitis
- o. Diminished Exocrine Pancreatic Function and the Aggravation of Dysbiosis
- i. Decreasing the Antibacterial Activity of Pancreatic Enzymes
- ii. Low Activity of Digestive Pancreatic Enzymes Leads to Fermentation and Putrification in the Small Intestine
- iii. Diminished Exocrine Function of Pancreas May Promote Dysbiosis, SIBO and/or Candida-yeast Overgrowth
- iv. Lower Exocrine Pancreatic Function Goes Together with Harmful Changing of Bile Biochemistry
- v. Low Pancreatic Enzymes and Bile Trigger Gut Motility Causing Constipation
- p. Intestinal Dysbiosis Having a Direct Connection with Any Stages of Exocrine Pancreatic Deficiency Disorders

Chapter 16-The Role of Exocrine *Pancreatic Deficiency* in Metabolic Syndrome, Obesity, Diabetes

- a. Pancreatic Functions and Diseases
- b. Metabolic Acidosis, Metabolic Syndrome and Syndrome X
- c. Chronic Metabolic Acidosis, Insulin and Diet
- d. Anatomical and Functional Links between the Exocrine and Endocrine Pancreas
- e. Diabetes Type 3 and Chronic Pancreatitis
- f. Possible Role of Metabolic Acidosis in Development Metabolic Syndrome, Overweight and Diabetes
- g. Metabolic Syndrome
- h. Endocrine function in different stages of exocrine pancreatic deficiency

Part II

HEALING FOOD IN THE DIGESTIVE (PANCREATIC) AND METABOLIC DISORDERS

Chapter 17-A Healing Pancreatic Diet

- a. History
- b. Eating for a healthy pancreas
- c. Three Revolutions and the Eating Changes of Populations

NUTRITIONAL RECOMMENDATIONS FOR SUPPORTING NORMAL FUNCTION OF PANCREAS AND IMPROVING OVERALL DIGESTION

Chapter 18-Chewing is Critical to Digestion

SUPPLYING THE BODY WITH NATURAL DIGESTIVE ENZYMES FROM FOOD

Chapter 19-Raw Foods

- a. Raw Eggs
- b. Raw Avocados
- c. Coconuts and Coconut Oil
- d. Goat's Milk

ADDITIONAL WAYS TO RECEIVE NATURAL DIGESTIVE ENZYMES

Chapter 20-Sprout Your Way to Pancreatic Health

Chapter 21-Iron Teeth: Blending is the Key to Pancreatic Health

Chapter 22-Juicing for Pancreatic health

Chapter 23-Eating Healthy and Nutritious with Convenient Fast Food

- a. Cooking in a Thermos
- b. Buckwheat and Quinoa
- c. Fermented Foods

SUPPLYING THE PANCREAS WITH THE PROPER AMOUNT OF MINERALS, VITAMINS AND ESSENTIAL AMINO AND FATTY ACIDS

Chapter 24-Supplementation with Minerals and Trace Elements

- a. Who Is At Risk of Mineral Deficiency?

Chapter 25-Supplementation with Vitamins

Chapter 26-Supplementation with Essential Amino Acids and Essential Fatty Acids

Chapter 27-Alkalizing Diet for Pancreatic Health: In Balance with Nature

Chapter 28-Chronic Metabolic Acidosis and the Modern Western Diet

- a. Acute and Chronic Conditions Accompanying Metabolic Acidosis
- b. Modern Food and Metabolic Acidosis
- c. Alkalizing Ability of Various Foods
- d. The Pre-Agricultural Diet of Our Ancestors Was Alkaline-Formed

Chapter 29-Water: Best Friend of the Pancreas

Chapter 30-Dietary Recommendations for *Acidic Pancreas and Bile Stage*

- a. What Should I Eat?
- b. What Foods Should Be Avoided or Eaten in Very Low Amounts?
- c. Food Combinations

Chapter 31-Dietary Recommendations for *Pancreatic Deficiency Stage*

- a. Separation Diet
- b. Diet for Candida-yeast overgrowth and/or Small Intestine Bacterial Overgrowth (SIBO)
- c. Fructose Malabsorption
- d. Low FODMAP Diet
- e. Another Hidden Enemy for Digestive Health – Lectin
- f. Multiple Foods Sensitivity, Intolerance, and Food Allergies
- g. Elimination Diet
- h. Diet for Gastro-Esophageal Reflux Disease (GERD)
- i. Diet for Metabolic Syndrome, Overweight Issues & Diabetes
- j. Diet for Fatty Liver and Pancreas
- k. Diet for Gallbladder Diseases
- l. Diet for Chronic Pancreatitis

Chapter 32-Dietary Recommendations for *Pancreatic Failure Stage*

- a. After Lessening of Exacerbation, the Diet Regime May Be Expanded if Tolerated

Part III

HOW TO IMPROVE THE EXOCRINE PANCREATIC FUNCTION, POSTPONE PANCREATIC DETERIORATION, AND HEAL PANCREATIC DISEASE

Chapter 33-European-Style Healing for Digestive (Pancreatic) Disorders – Karlovy Vary Healing Mineral Water

- a. History
- b. Acid – Alkaline Balance
- c. What causes the body to be acidic?
- d. Alkalize For Health
- e. Karlovy Vary Healing Mineral Water as a Healing Agent
- f. Physiological and Healing Actions of KVHMW
- g. Scientific Explanations On How the Karlovy Vary Healing Mineral Water Helps Pancreatic Disorders
- h. Karlovy Vary Healing Mineral Water Preparation
- i. Synergistic Effects of KVHMW and Colon Hydrotherapy
- j. Genuine Karlovy Vary Thermal Spring Salt Content

Chapter 34-Acupuncture and Pancreatic Disorders

- a. The Effects of Acupuncture on the Digestive System
- b. Acupuncture for the *Acidic Pancreas and Bile Stage*
- c. Acupuncture for the *Pancreatic Deficiency Stage*
- d. Acupuncture for the *Pancreatic Failure Stage*
- e. Auriculotherapy
- f. SuJok

Chapter 35-Herbal Remedies for Exocrine Pancreatic Deficiency

Chapter 36-Massage, Point Massage, Chiropractic Manipulations, and Abdominal Manual Therapy

- a. Abdominal and Body Self-Massage
- b. Abdominal Manual Therapy

Chapter 37-Therapeutic Exercises

- a. Recommendation for Performing Exercises
- b. Exercises Have Tremendous Impact on Organs and Systems
- c. Cleansing the Entire Gastrointestinal Tract by Drinking KVHMW and Exercises

- d. Role of Physical Activity and Special Healing Exercises in the Pancreatic Disorders

Chapter 38-The Mind /Body Connection and Pancreas

- a. Hypnosis for Digestive Health
- b. Hypnosis for Chronic Abdominal Pain
- c. Hypnosis for Depending on Alcohol and Painkillers

Chapter 39-Whole Body Cleansing through the Restoration of Friendly Intestinal Flora and Colon Hydrotherapy

- a. Possible Benefits of Colon Hydrotherapy
- b. Inner Toxicity from Medical Standpoints
- c. Pancreas and Inner Toxicity
- d. Program That Decreases Inner Toxicity and Promotes Pancreatic Function

Chapter 40-Biotherapy Outpatient Program for Alcohol Cessation

- a. Healing the Addicted Person and Addicted Brain Chemistry
 - 1). Elimination of Alcohol and Products of its Metabolism – Detox/Detoxification
 - 2). Brain Chemistry Normalization
 - 3). Acid-Alkaline Balance Normalization
 - 4). Subconscious Programming
 - 5). Healing of Alcohol Related Health Problems

Chapter 41-A Non-drug Approach for Abdominal Pain

- a. Withdrawal from Opioids

Chapter 42-Anti-Candida Program

- a. Biotherapy Program for Healing Dysbiosis
- b. Probiotics and Prebiotics
- c. Herbal Remedy
- d. Nutritional Supplementation

Chapter 43-Nutritional Therapy for Pancreatic Deficiency

- a. 5 Common Causes for Nutritional Deficiency in Chronic Pancreatitis

- b. Magnesium and Potassium for Pancreatic Health
- c. Other Nutritional Problems in Chronic Pancreatitis

Chapter 44-Enzymes for Pancreatic (Digestive) Disorders

HEAL YOUR PANCREAS, HEAL YOUR DIGESTION, AND HEAL YOURSELF (Non-drug, non-knife healing programs for the pancreatic deficiency)

- a. Relationship between Gastric and Pancreatic Secretion

Chapter 45-Healing Program for *Acidic Pancreas and Bile* Stage

- a. Functional Dyspepsia/Irritable Bowel Syndrome (IBS)
- b. Gastro-Esophageal Reflux Disease (GERD) and Bile/Pancreatic Reflux
- c. Hiatal Hernia
- d. Sphincter of Oddi Dysfunction Type III

Chapter 46-Healing Program for *Pancreatic Deficiency* Stage

- a. Chronic Pancreatitis

Chapter 47-Healing Program for *Pancreatic Failure* Stage

Some final words

References

About the Authors

FOREWORD

The pancreas is a forgotten organ in the human body.

By the way, where is your pancreas located? Very few people point their fingers in the right place. It is almost one of the unknown organs in the gastrointestinal tract. Very few are familiar with normal pancreatic function too. The popular pancreatic interests are centered mostly with diabetes and pancreatic cancer.

This book is about the pancreas. Writing this kind of book causes the serious dilemma of how to make the reading of this book useful and easy to understand for people without a medical background and, from another hand, making it practical for the medical professionals, which don't need popularization, but are interested in scientific dates and clinical details?

1st chapter section

The authors have their own writing style. Every beginning of a chapter will have a section ***“for individuals lacking a medical background”*** devoid of getting into the jungle of heavy medical and chemical terminology.

This section of the book is for average individuals without deep medical knowledge but with common sense and willingness to learn more. In this case, simple words, charts, analogies, and pictures will be used.

It is difficult to find a person that does not have digestion problems. The digestive system, or gastrointestinal tract, includes hollow tube organs, such as the mouth, throat, esophagus, stomach, small and large intestines as well as solid glands such as the salivary glands, liver, and pancreas.

The pancreas is a vital organ for our body. People can survive without the stomach, small intestine, and colon but not without the pancreas. Life depends on this small gland, deeply hidden inside the abdomen cavity. The pancreas is an organ with dual tasks. Most individuals are only aware about the role of the pancreas in sugar metabolism and that pancreas produces insulin, the vital hormone to prevent diabetes.

The second function of the pancreas is producing digestive enzymes - powerful proteins that split food we eat into particles small enough to travel through the intestinal wall so that we can digest and assimilate this food.

Ask anyone around and almost everyone has some sort of unpleasant GI symptoms: gas, abdominal distention, belching, heartburn, abdominal cramps, pains, nausea/vomiting, diarrhea/constipation, and so on.

What many people do not realize is that the function of many organs and systems and the whole body's health, strongly depend upon the health of our digestive system. Our health and life depends upon the quality and amount of food we eat and how we can digest this food, assimilate

this food, and eliminate waste. The pancreas is a key player in the digestive team. This book focuses about the close relationship between the liver, gallbladder, pancreas, and intestines. Normally, these organs work as orchestra, but in sick conditions, they are bickering foes.

From this book you will learn about the connection of the endocrine (hormonal) and exocrine (producing and releasing digestive enzymes) functions of the pancreas.

- How to improve the function of the pancreatic gland, as a whole organ?
- How to increase the production and activity of digestive pancreatic enzymes?
- How to help the pancreas to heal and postpone severe complications after the first attack?
- How to help a sick and weak pancreas without drugs and knives?

Here, readers will find the answers to these very important questions.

Most human diseases depend on two big problems:

1. The deficiency of vital substances in the body such as water, proteins, minerals, trace elements, vitamins and so on. As your car without gasoline stops moving, so the deficiency of the vital nutrients will stop the organs from performing their proper tasks.
2. Toxicity (chemical or biological): Toxicity literally kills the cells and harmfully influences the body's metabolism causing inflammation, pain, cancer development and so on.

These two factors are directly related to pancreatic health. Besides that, this book will try to explain how the whole body acidity – metabolic acidosis destroys the pancreas and proper work of pancreatic enzymes and pancreatic hormones.

Millions of Americans suffer from a variety of gastrointestinal disorders including abdominal pain, stomach discomfort, cramps, gas, bloating, heartburn, cravings, malnutrition, alteration in bowel habits, foul-smelling stool, etc. Many of these sufferers have pancreatic deficiency and do not realize it.

Those suffering from this problem can eat a healthy diet, but the body will not properly utilize the food's nutrients. Their organisms are literally starving. Some people can be overweight but their body can have severe malnutrition. Without the proper amount and good quality of pancreatic digestive enzymes, even the "healthiest" diet in the world will not make you healthy, good looking and young.

Without the proper function of the pancreas, which produces the right amount of high quality digestive pancreatic enzymes, people cannot properly digest food; therefore, they suffer also from a deficiency of essential minerals, trace elements, and vitamins. This deficiency leads to serious disturbances of the gastrointestinal tract and the entire organism.

Millions of people are continually tired, develop chronic diseases, and age prematurely. In the worst case scenario, they develop pancreatic cancer.

People can suffer from a hidden pancreatic deficiency and do not even know that a lack of the pancreatic digestive enzymes can also increase inflammation, body's pain, and a lack of energy, hindering the body's ability to heal the wounds and traumas.

The popular health books and websites focus on the liver, colon, heart and stomach but not on the pancreas. On the other hand, there is not much medical literature concerning pancreatic health either. Various specialists have different opinions focusing on different aspects of the pancreatic health.

This sounds a lot like the story about six blind men who were asked to determine what an elephant looked like by feeling different parts of the elephant's body. The blind men guessed that the elephant looked either like a pillar, rope, tree branch, hand fan, wall or solid pipe from feeling the elephant's leg, tail, trunk, ear, belly and tusk (in that order). All the blind men were correct, but this was far from the real picture obviously.

In this book, you will find personal viewpoints from the authors on digestive (pancreatic) problems, which are confirmed by common sense, years of the authors' personal clinical experiences but also scientific information from many respectful researchers and medical doctors.

If you have health problems, you will find many recommendations in this book. Do not use them as medical advice. Try to find knowledgeable medical providers to work with. Belief, willingness, patience, and self-discipline are required for this job.

2nd chapter section

The rest of each chapter is provided *for individuals with medical backgrounds* wishing to know more and, certainly, for medical professionals.

Today, researchers and medical practitioners look at the pancreas and make different points of view on cause, development, and possible treatment of its disorders and diseases according to their own specialty.

Having medical experience in acute intensive care, outpatient clinic and private practice in digestive disorders' allows the authors sharing of thoughts about pancreatic health.

Some topics about pancreatic health in this book are new and will sound strange to some.

To convince conservative, but interested in this topic persons, more than 300 referrals from respectful and reputable medical books, textbooks, magazines, articles, and websites are referenced. These referrals are scientific and clinical works regarding pancreatic function, health, disorders of the pancreas and their treatment of respectful and well known professors, researchers, medical doctors and health practitioners from the USA, Canada, North and South America, Europe, Asia, Russia, etc.

Medically speaking, the pancreas by itself is also in a strange situation. Disorders of the exocrine function of this organ are the priority of the gastroenterologists, but other specialists treat pancreatic endocrine diseases such as diabetes.

Let's take, for example, chronic pancreatitis. Even authorities in pancreatic diseases do not have a consensus what is the main reason for developing this serious disease.

In all medical schools' textbooks of gastroenterology (for example, Yamada T et al, Sleisenger & Fordtran's, etc.), it can be seen that the clinical presentation of chronic pancreatitis starts from steatorrhea, malabsorption, diabetes, pain and weight loss. This condition in medical literature is called "pancreatic insufficiency". Sorry to say, it is not pancreatic insufficiency; this is real pancreatic failure similar to kidney, liver, heart and lung failure.

Clinical description of chronic pancreatitis begins from the final stage of this disease, when only 10% functional capacity is left, and the treatment approach is very limited. This is a medical paradox.

From the first attack of pancreatitis to *pancreatic failure* takes about 8 -15 years; therefore, the focus has to be done in this time to prevent pancreatic failure, which is called now chronic pancreatitis. Even for brilliant specialists with virtuous technique and sophisticated equipment it is not an easy task to help patients when the pancreatic tissue and 90% functionality is gone.

Successful treatment of pancreatic diseases nowadays is generally difficult and requires many different approaches.

Exocrine pancreatic disorders are more common than formerly believed both in diabetic and non-diabetic people. For instance, autopsy studies indicate pancreatic involvement in 13% of a "normal" population. Some clinical studies find the relation between functional digestive diseases and low pancreatic function. In almost all chronic diseases of the gastrointestinal tract, exocrine pancreatic function is diminished.

87,000 cases of pancreatitis annually occur in the USA. This is only the tip of the iceberg of digestive (pancreatic) diseases. Acute and chronic pancreatitis are diseases on the rise.

The diagnosis of chronic pancreatitis can be challenging since laboratory studies and imaging procedures may be normal, especially in the beginning of this process. Most attacks of pancreatitis are mild and go undiagnosed.

Some authorities in the pancreatic field consider that 8% of diabetes mellitus cases are caused by chronic pancreatitis. On the other hand, a large number of diabetics suffer from digestive problems as well.

According to the statistics, the epidemic of obesity leads to a rise in epidemic proportions of nonalcoholic fatty liver disease (fatty liver). There is growing evidence that the fatty liver combines with the fatty pancreas with lowering of both their functions.

More than 25 million people in the United States suffer from liver, bile duct, or gallbladder diseases, according to the American Liver Foundation. No question that in many of these cases, there is close pancreatic involvement.

The authors' viewpoint that the pandemic of digestive (pancreatic) disorders is strongly interrelated with the pandemics of metabolic acidosis and dysbiosis will be attempted to be proven in this book.

Medical providers can help their patients by focusing on early stages of the pancreatic disorders. The authors propose that the practical clinical classification of the exocrine pancreatic deficiency stages be the following: functional, structural, and irreversible. For each of these stages, the reader will find healing programs and recommendations.

It is time for medical professionals to reassess established protocols dealing with pancreatic health. Medical practitioners are used to looking at the pancreas as an "accessory" digestive gland. Yet, here it is considered that the pancreas is one of the body's essential organs. Moreover, it is believed that all gastrointestinal health critically depends upon the proper functioning of this vital organ.

Basic scientific and clinical evidence currently encourages a fresh, holistic look at the development of pancreatic disorders, particularly a comprehensive look at the pancreas as a whole and vital organ.

In the minds of the authors, here are the most salient points:

- >Almost all problems of the GI tract are closely related with the proper functioning of the pancreas; therefore, a clinical diagnosis of a gastrointestinal disorder de facto includes pancreatic disorders

- >The pancreas is the main organ of the entire digestive system. It is vital for the pancreas to have strong and healthy relationships and connections to its "neighbors" and "co-workers" such as the liver, gallbladder, stomach, duodenum, small and large intestines

- >Today, the medical view on digestive disorders narrowly focuses on the "hollow" organs such as the stomach, small and large intestines without any attention on the "solid" digestive glands

such as the pancreas and liver. It is known that without proper quality and quantity of pancreatic juice and bile, the normal digestive process in hollow chambers could not occur

>Furthermore, it is important to look at the close relationship between exocrine and endocrine functions of the pancreas when assessing pancreatic disorders. Both pancreatitis and diabetes are diseases of the pancreas, and they have many similarities in point of causes, development, symptoms, course, complications, and treatment

> Pancreatic disorders develop relatively slowly; therefore, medical professionals need to be more sensitive and focus on the first silent signs and symptoms at the beginning of the illness

> The treatment of pancreatitis at the final stage of the disease is very difficult; preventive measures and treatment at the early stages of these diseases are more likely to stop or reverse the progression of the disease and to postpone pancreatic failure

> Normal pancreatic function is vitally dependent upon maintaining homeostasis of the body. Metabolic acidosis and a deficiency of proteins, vitamins, minerals, trace elements, and bicarbonates have a serious and negative impact on pancreatic function, digestion and entire health

> For healing purposes, it is essential to focus on the patients' lifestyle, and diet and their possible impact on the development of pancreatic disorders

> It is difficult to overestimate the positive or negative impact of food on digestive (pancreatic) disorders; therefore, the patient must be taught the proper customized healing diet and then must adhere to the dietary recommendations

> Digestive (pancreatic) disorders must be observed with an outlook on the regulation of the pancreas by digestive hormones, as well as the nervous and endocrinal systems

> Positive changes of harmful environmental, toxic, parasitic, and dysbiotic factors are necessary for the prevention and treatment of digestive (pancreatic) disorders

This book is an attempt for a fresh and deep, holistic look into the pancreas, its structure, and function as a vital organ for whole body. This book focuses on the many ways of to improve the functions of the pancreas by using nondrug, non-surgery approaches. These rational approaches have been used for hundreds of years by medical doctors, and health professionals all over the globe for millions of their patients to improve the digestive (pancreatic) health.

The authors have used many of these methods in their practice for decades with positive results. Some of these holistic, alternative and complementary approaches for healing and avoiding pancreatic disorders are absolutely unknown by the American public and medical professionals, for example, using healing mineral water and a medical diet for pancreatic ailments.

Because the pancreas is a very complicated essential organ with many puzzles and mysteries, prevention and treatment of pancreatic disorders are very difficult problems and require many disciplinary approaches.

The authors consider that there is only one medicine to help people prevent and treat the diseases but that implementation can be different. Successful treatment of pancreatic diseases requires a team approach. Practitioners of complementary or alternative medicine can be very good players in this process, especially in the early stages.

The authors emphatically believe that healing approaches described in this book can improve the quality of life and life span of sufferers of pancreatic diseases.

The medical credo of the authors: ***“The treatment of disease must be less dangerous than disease by itself!”***

The authors hope that this book will be useful to many different health professionals: medical doctors, naturopathic physicians, RNs, chiropractors, herbalists, acupuncturists, nutritionists, and colon hydro therapists and, most importantly, for the hundreds and thousands of sufferers with the digestive (pancreatic diseases).

Evidence based clinical and scientific practice has been shown in this book:

A healthy pancreas means a healthy organism

Authors

HEALING FOOD IN THE DIGESTIVE (PANCREATIC) AND METABOLIC DISORDERS

Chapter 17-A Healing Pancreatic Diet

For all readers

This chapter is titled *A Healing Pancreatic Diet* and focuses on the European way of eating to enhance health and receive the maximum benefits from food consumption for proper pancreatic function.

The word “diet” is derived from the Latin “diaeta”, meaning *mode of life*, a word that up until the last century was often used in a much broader sense than its current usage.

In some European medical schools, the students were taught the special medical scientific discipline as dietology or diet therapy. For thousands of years, doctors have been using food as a healing factor in some diseases as a branch of medicine.

a. History

“Let food be the medicine and medicine be the food,” said Hippocrates (460 –370 BC), the father of modern medicine more than two thousand years ago. Galen (Aelius Galenus or Claudius Galenus , 129 – 200/217 AD), the prominent Roman physician, also pointed out that all treatments have to begin with proper food.

A healing diet is mentioned in many Chinese, Aurvedic and other Eastern medicines. Abū Alī Sīnā (c. 980 - 1037) – whose Latinized name was Avicenna was the most recognized doctor in his time. His book *Canon of Medicine* provided a complete system of medicine according to the principles of Galen and Hippocrates, which was a standard medical text at many medieval universities as late as 1650. After setting out the meal plan for his patients, Avicenna also recommended how many times the patients should be eating per day. He considered that physical exercise, massage, enemas and diet are the keys to health. For example, here is a short translation from his medical poem

*There is no food finer and more useful, then vegetables balm and fruit juice.
They are very curative for all illnesses and they prolong our life.*
Avicenna. «Medical advises»

Thomas Sydenham (1624-1689) – “the Shakespeare of Medicine” or “the Hippocrates of English medicine” was widely regarded as the leading English physician of the second half of the 17th century. Sydenham's therapy consisted of a carefully regulated diet. He first recommended special diets for people with gout or obesity and pointed out the importance of how the food was prepared. He advised doctors to assist nature by respecting the body's self-healing ability.

The modern science of nutrition in Europe grew out of efforts to understand and isolate the dietary factors or food components that prevented deficiency diseases. For example, the scurvy experiments of James Lind (1716-1794) proved it was possible to prevent diseases by specific changes in diet.

Although diet and nutrition continued to be importantly judged for health, diet treatment did not develop much until the 19th century with the advances in chemistry and biology. Early research focused on vitamin and mineral deficiency diseases while later scientists proposed daily requirements for protein, fat, carbohydrates, minerals, and vitamins.

In the 20th century, dietology was formed as medical science in Europe and was taught in medical schools. Dietology and diet therapy is the section of medicine studying principles of a

balanced diet for healthy and sick individuals and methods of treatment for various diseases by means of dietary change. Dietology also studies the disorders arising in a human body by a deficiency or surplus of certain nutrients.

Contrary to Europe, the American words “dieting” and “diet” mostly refer to the deliberate selection of food to control body weight but not for the healing purposes of different kinds of ill conditions.

b. Eating for a healthy pancreas

In this book, the authors will try to share their experiences and proven scientifically, evidence-based recommendations on how food can keep the proper function of the pancreas, thus the whole digestive system. This is not a cookbook with recipes as there are no strict “meals plans”.

Instead, this book summarizes the basic guidelines of eating for a healthy pancreas.

The basic guidelines of eating for a healthy pancreas do not include starvation or fasting, complicated advice or counting of calories and do not require strict vegetarianism. All that is needed are healthy, tasty, and simple foods full of natural digestive enzymes

At first, we will focus on why so many GI disorders are epidemic and how the current foods negatively influence pancreatic health.

Then, we will dwell upon a healthy and healing diet in the *acidic pancreas and bile, pancreatic deficiency* and *pancreatic failure* stages of pancreatic disorders. No questions, food affects the pancreas. We shall discuss what must be accomplished to avoid deterioration of pancreatic digestive function and keep the pancreas as healthy as possible.

There is an English Proverb: “*Don’t dig your grave with your knife and fork*”.

This book will attempt to prove the validity of this proverb and give directions to pancreatic health by:

- 1. Supplying the body with natural digestive enzymes from food**
- 2. Strengthening the pancreas and whole body with the right ratio of minerals, vitamins, essential amino acids and essential fatty acids**
- 3. Keeping the proper body acid-alkaline balance because acidity kills the pancreas**
- 4. Maintaining the proper ecology inside the GI tract**

All these suggestions are interrelated and equally important.

In different kinds of situations, seasons, residences and habits, diets are varied. Nevertheless, the proper amounts of digestive enzymes, vital minerals, vitamins, essential amino acids, and fatty acids in foods are fundamental for survival. Deficiencies of those substances are a main source of many “diseases of civilization”.

As we mentioned a few times before, the pancreas and liver are alkaline glands. Certain diets cause an unnatural switch to metabolic acidosis that is harmful for pancreatic health and the entire digestive system as well as the whole body.

Another pancreatic health concern is the proper ecology inside the GI tract.

Genetically, our pancreas and digestive system is similar to our ancestors. However, eating habits, especially what and how we eat now are very different from our predecessors and altogether this put many stresses on the pancreas.

Nothing in the natural living world:

- Eats only cooked and processed foods without natural digestive enzymes
- Simultaneously eats mixed meats, grains, vegetables, sandwiches, chicken, pasta, cheesecake, salads, soup, entrées and dessert altogether in one meal
- Has constant and easy access to food via refrigerators, 24-hour food supermarkets, and restaurants filled with plenty of foods
- Eats an abundance of artificial man-made products such as sugar, low fat sour cream, margarine, “trans” fat, preservatives, artificial colors, etc.
- Drinks alcohol, soda, and sweet drinks as modern populations do
- Eats for pleasure and not for survival; “Live to eat, not eat for living” is a human privilege
- Eats popcorn with soda and watches movies or television simultaneously or “eating on the go”, etc

Nothing eats in these manners, except for modern humans.

Moreover, nothing in the natural living word has so many digestive problems, overweight issues, diabetes, cancer, or other “diseases of civilization”.

In modern society, humans have a larger pancreas, thus, the weight of the pancreas is larger. By comparison with animals, the human pancreas is enlarged because it has a much harder job to perform.[177] This process is called pancreas hypertrophy or enlargement and is analogous to heart hypertrophy, thyroid hypertrophy, etc. The initial response of any human organ that is not functioning adequately to meet the demands made upon it is to undergo hypertrophy. This is an inefficient attempt to fulfill its role in maintaining health. Those populations with more natural living digestive enzymes in their food have a smaller pancreas.[177]

Modern populations do not consume enough natural digestive enzymes from food. Thus, the pancreas needs to produce more own digestive enzymes to digest and absorb the essential nutrients to maintain life

This problem was developed gradually, generation by generation.

DNA research of current society draws a conclusion that the modern era appeared only 125,000 years ago. Ancient populations have been completely adapted for an environment surrounding since that time.

There is an assumption in anatomy and physiology that humans are preadapted to the “hunter-gatherer” diet. The hunter-gatherer society depended on hunting, fishing and gathering of wild foods. Hunter-gatherers obtained most of the foods from gathering rather than hunting as up to 80% of the food was obtained by gathering.

Food processing dates back to the prehistoric ages when crude processing incorporated slaughtering, fermenting, sun drying, salt preserving and various types of cooking (such as roasting, smoking, steaming, and oven baking). The scientists considered that fire at prehistoric times was used mainly for surviving during the cold weather and as a guard from wild predators and only 20% - 30% of foods were prepared by using fire. Genetically, our digestive system depends upon these kinds of foods.

The diet of the hunter- gatherer approximately consisted of the following important parts:

65 % - vegetables, fruits, nuts and honey

35 % - low-fat meats of wild animals, birds, eggs, fish or some insects

Ideally, humans are adapted for this type of diet. The authors wish to underline this fact - *Homo sapiens* ideally adapted for residing in nature, which existed in an interval from 150,000 - 20,000 years ago. Otherwise, they would not have survived, and humans would be extinct.

30,000 years ago, the population had a powerful, strong body constitution and excellent teeth without signs of decay. The volume of the brain was a little more than the volume of a modern person's brain. They possessed fine health.

c. Three Revolutions and the Eating Changes of Populations

The scientists consider that our gastrointestinal tract genetically and functionally has not been changed since this time. However, the development of food gathering technology has completely changed. There were three revolutions: **agricultural, industrial and food revolution**.

Agricultural Revolution

18,000 years ago, Egyptians started to grow wheat and barley. In the Near East, goats, gazelles and sheep were raised. Cattle breeding and agriculture had begun.

Agriculture occurrence led the way for less eating varieties. It has caused essential health deterioration. The skeletons discovered after that time displayed considerable easing of body composition and power, and signs of degenerative diseases.

Many methods of food processing at that time started destroying the essential food digestive enzymes. Cooking, boiling, baking, and frying destroyed all the natural food digestive enzymes.

Industrial Revolution

During the past 150-200 years, changed agriculture technologies, machines, devices, equipment, and new techniques for manufacturing, processing, storage, delivering and even consumption of food products was revolutionized. For example, vacuum bottling techniques, tinning, canning, and pasteurization were all developed at this time. In the late 18th and early 19th centuries, the industrial revolution led to the progress of mechanized food processing techniques and intensive livestock farming methods. This enabled the production of refined cereals, refined sugars, purified hard liquors, table salts, refined vegetable oils and fattier domestic meats, which have become major components of the western diet.

The industrial revolution helped to mass-produce wheat, rice, potato, corn, and soy - the cheap source of food for a quick growing world population so that they can afford to use it.

Food Revolution

The food revolution has had an even more significant impact on preparing, conserving, preserving and dispersing modern food for the last 60 years. Food processing with advances as spray drying, juice concentrates, freeze or vacuum drying and the introduction of artificial sweeteners, coloring, flavoring agents and preservatives decrease the amount of essential enzymes, vitamins, minerals and bicarbonate in the foods.

Farmers overuse antibiotics and hormones for animals and pesticides and fertilizers for plants. Processed foods often have a higher ratio of calories to other essential nutrients than unprocessed foods, a phenomenon referred to as “empty calories”.

Many people are overfed but are still malnourished with severe deficiencies of vital nutrients. So-called junk food, produced to satisfy consumer demand for convenience and low cost, are most often mass-produced processed food products. Many artificial products unknown in nature such as egg powder, cereals, nonfat dairy products, sodas, high fructose corn syrup, luncheon meats, margarines, frozen yogurt and many others have all been developed during the food revolution.

All of these artificial products changed the food allowance for which evolution had been adapted by the hunter-gatherer society.

Modern diet of the average individual is:

55 % - bread, dairy products, sugars, refined fats and alcohol

28 % - eggs, fish and meat

17 % - fruit, vegetables, nuts

Additionally, the modern individual eats mostly farm animals where the fat maintenance is approximately 20 % whereas in meat of wild animals, the fat is much less at 4 %.

The hunter - gatherer satisfied the requirement for carbohydrates at the expense of natural vegetables and fruit, albeit still receiving enough vitamins, minerals, and natural food digestive enzymes

The modern person consumes many carbohydrates that are mainly pure sugar and processed white flour or white rice. As a result, people not only develop a deficiency of vitamins and minerals, but also provoke the occurrence of digestive disorders, obesity, Metabolic Syndrome, diabetes, and epidemics of other metabolic and degenerative diseases.

A deficiency of minerals such as potassium, magnesium, calcium, zinc, cobalt, and especially bicarbonates in modern food products switch the body's inner environment from slightly alkaline to acidic causing chronic metabolic acidosis.

In 1997, Researchers from the *Department of Medicine and General Clinical Research Center, University of California, San Francisco, California*, L. Frassetto, R. Curtis Morris and A. Sebastian demonstrated that low-grade chronic metabolic acidosis exists normally in humans eating ordinary diets.[49, 62, 63, 64]

It is important to note that grains, legumes, and dairy were generally not available to hunter-gatherers. These foods are provided in significant quantities only via agriculture and had been a significant part of the human diet for only about 10,000 years. The extent of human genetic adaptation to such foods is a controversial, but the majority views the genetic adaptation that has taken place in the last 10,000 years to be very limited. This view is confirmed by the widespread intolerances to dairy (lactose intolerance) and wheat (gluten intolerance) in modern society.

Similarly, modern processed foods have been available for only a few generations; therefore, genetic adaptation to them in such a short period is highly unlikely. Sugars, refined white flour and white rice, soft drinks and “trans” fats are man-made artificial products that create an unnatural effort on our digestive system and particularly the pancreas.

Preservatives, artificial colorings, antibiotics, hormones, pesticide residues and other poisonous artificial substances in our food produce a severe toxic overload that, in many cases, our body cannot bear.

All these unnatural food habits also damage the health of our pancreas. A large amount of research now confirms how nutritional deficiencies, acidosis and processed “dead” food without living enzymes decrease exocrine pancreatic function.

To keep the pancreas healthy or give our pancreas the chance to recover after many, sometimes hidden digestive disorders, the Healing Pancreatic Diet is a great way to begin with

Interesting facts at a glance:

For thousands of years, foods have been used as medicine

A diet is not just used for losing weight. Dietology or diet therapy is a special medical scientific discipline in Europe that studies principles of a balanced diet for the healthy and ill persons and is used as a method of treatment for various diseases

Dietology also studies the disorders arising in a human body by deficiencies or excess of certain nutrients

A healing pancreatic diet:

- 1. Supplies the pancreas and whole body with natural digestive enzymes and the right ratio of minerals, vitamins, essential amino acids and essential fatty acids from food**
- 2. Keeps, the proper body, acid-alkaline balance because acidity kills the pancreas**
- 3. Keeps the proper ecology inside the GI tract**

Those measures are vital for pancreatic health

Scientists consider that our gastrointestinal tract genetically and functionally has not been changed from ancient times, but our food and eating habits have changed

The agricultural, industrial and food revolutions have changed food preparation and eating habits, particularly during the past 200 years

First, this led to a deficiency of essential nutrients and natural digestive enzymes in modern foods. Secondly, acid-forming and processed foods with artificial components created the unnatural effort on our digestive system and particularly the pancreas; therefore, the pancreas of the modern population is usually enlarged, and pancreatic functions are diminished

A Healing Pancreatic Diet is a great way to keep the pancreas healthy or give the pancreas a chance to recover after, many obvious, and hidden digestive disorders

NUTRITIONAL RECOMMENDATIONS FOR SUPPORTING NORMAL FUNCTION OF PANCREAS AND IMPROVING OVERALL DIGESTION

For all readers

Healthy pancreas means having healthy digestion. A healthy digestion fulfills a healthy body. No doubt, that food is the major factor, which either heals the pancreas or kills it.

Food products directly or indirectly influence the pancreatic function both as a digestive function and as whole body health. Various kinds of food influence pancreatic function in different ways.

Throughout hormonal and nervous systems, food is a natural stimulant of pancreatic function. Foods naturally supply the pancreas with essential nutrients to produce digestive enzymes and improper nutrition can cause many disorders and diseases.

Before turning to nutritional recommendations, it must be emphasized that the authors are not proponents of a strict vegetarian diet. We strongly believe that 50% of raw food is a positive step towards pancreatic health. However, for people with severe exocrine pancreatic deficiency, switching to additional amounts of raw food has to be very slow. For those individuals, too much fiber can cause severe gas, bloating or exacerbation of diarrhea. Some raw food is very difficult to digest even for people with a healthy digestive system; therefore, the main requirement for everyone who decided to eat healthy is vigorous chewing.

Chapter 18-Chewing is Critical to Digestion

For individuals lacking a medical background

Can you image that it is Monday morning. You have overslept and are late to work, so, you hurry up. You run to the nearest coffee shop and grab coffee and muffins or a bacon and egg sandwich and gulp it down hurriedly with a glass of orange juice before running off to work.

Eating "on the go" is typical for many Americans. Have you ever timed yourself when eating? Everybody has heard the expression "Time is money." Nevertheless, health is worth money as well. If you are in a rush and do not have time to sit and enjoy your meal, allowing food to nourish your body rather than satisfy your hunger, then yes, you win time, but lose the health, especially the health of the whole GI tract. Unfortunately, most of what is wrong with us is related to our dietary habits – not just what we eat but when and how.

The journey of the food we eat through the digestive system is more complicated than one might believe. This journey begins with ingestion into the mouth, where mechanical and chemical digestions occur. The GI tract can be compared with a highway that starts from the mouth and ends in the anus.

Digestion begins in the mouth. The mouth is an entrance onto the freeway. If you do not take the right entrance you will get lost. If you do not have the time to sit and thoroughly chew your food the way you should eat, the entire digestive process will be broken from the beginning.

Chewing your food completely is an often-ignored part of maintaining a healthy lifestyle.

Good health depends upon what we digest and assimilate but not necessarily what we eat

For close and proper food contact with digestive enzymes, food particles must be small enough to be mixed with water. Teeth and salivary glands are designed for this job. Then all one has to do is chew food slowly and vigorously.

We have 32 teeth, and they are not there just for a physical presence. The teeth initiate mechanical digestion by grinding the food. The chewing mechanically breaks down very large pieces of food into smaller particles. This results in the food having an increased surface area for the actions of saliva, stomach and pancreas digestive enzymes. The chemical process of digestion also begins with chewing and mixing food with saliva because it contains enzymes that contribute to the chemical process of digestion. These enzymes and water are responsible for the breakdown of complex molecules.

Carbohydrate digestion begins with salivary amylase as it breaks down complex carbohydrates into simple sugars. Additionally, the first stage of fat digestion also occurs in the mouth with the secretion of the enzyme lingual lipase by salivary glands that are located under the tongue.

The saliva is made up of mucus that serves as a lubricant and an alkaline electrolyte solution that moistens the food. Saliva helps to lubricate the food, making it easier for foods (notably dry ones) to pass through the esophagus easier.

Why do we not chew slowly and vigorously? First and foremost, we blame High School for the poor eating habits of today. High School schedules 3-4 daily lunch shifts where kids file into a cafeteria (with very questionable food choices), knowing they only have 20 minutes before returning to class, while simultaneously balancing bathroom breaks and visiting lockers. Well, it

is easy to see how we all became accustomed to eating in frenzy with the only goal being eating as fast as possible.

We bring this learned manner into our adult lives as “eating on the go” habits. Additionally, many of us combine eating with reading, playing video games, watching TV, working on the computer, walking, shopping, or in the worst case scenario, driving the car.

All these habits distract us from the correct digestive process with an insufficient amount and poor quality of released saliva. Improper chewing leaves large chunks of food going down the esophagus into the stomach and beyond. Since the stomach acid, pancreatic and intestinal enzymes work best on smaller particles, they cannot function properly if they have to work on larger chunks. This results in undigested foods that breed pathogenic bacteria and yeast and cause fermentation, gas and rotting. If this continues, the intestinal lining will be damaged, causing irritation and inflammation.

So how many times should you chew food? It is impossible to give a definitive answer to this question. Plenty of variables need to be addressed. For example, you would need to chew a piece of meat a more frequently than a piece of fruit. A good way to tell if your food has been chewing properly is to chew until you can no longer recognize the food by the texture. Just become aware of your eating habits, slow down, and enjoy your food.

**Proper digestion is achieved by "drinking solid and chewing liquid foods."
For simplicity, drink your food and eat your liquid at all times**

What are some of the Problems of Not Chewing Thoroughly?

For individuals with medical backgrounds

Chewing food promotes production of the saliva digestive enzymes. Contrary, the less time we spend chewing and tasting, the less saliva and starch-digesting enzymes are produced to aid in the entire digestive process.

Predigesting allows for less effort by the pancreas for truly accomplishing the digestive process. The less digestion that takes place before food reaches the small intestine, the greater the stress placed on the digestive system. At this point, the pancreas and the other organs of the digestive system are put under tremendous stress since they have to draw from reserves in the entire body in order to produce massive amounts of the proper digestive enzymes. The result of poor chewing is that most of our meals enter our stomachs woefully devoid of enzymes.

Keeping food in the mouth longer and chewing, allows, for the food's flavors, to be recognized by the tongue. When the tongue recognizes the flavor, it sends a message to the brain, which in turn sends messages to the digestive system especially to the pancreas resulting in the release of the correct digestive juices needed for that food. Additionally, chewing signals the pancreas to prepare to secrete enzymes and bicarbonate into the lumen of the small intestines.

"The Great Masticator" - Dr. Horace Fletcher advised to chew more to live longer. As he detailed in his 1913 book *"Fletcherism: What it is"*, he stated that chewing food to a pulp before you swallow it, leads to better absorption, which leads you to eat less, which leads you to buy less, which leads to more money in your pocket to buy other things.

Further scientific researches confirm better digestion and assimilation of food nutrients by proper chewing. On another hand, poorly digested food equates to poor absorption of the minerals, vitamins and essential nutrients from the foods eaten.

Eating slowly with more chewing prevents overeating. Chewing your food will let you feel satisfied and curb your appetite with less food while enjoying it more. Fast eating seems to be a risk factor for the Metabolic Syndrome (combination of symptoms such as high blood pressure, obesity, high cholesterol, belly fat and insulin resistance).

Chewing each bit thoroughly allows less air to enter in, which decreases gas and burping. Rapid eating may cause acid reflux. It may be especially true for people suffering from GERD (Gastro-Esophageal Reflux Disease). If you have heartburn, your first action and first aid is to swallow a lot of your alkaline saliva to neutralize the stomach acid. From slow chewing, saliva lubricates the esophagus, as well. In fact, the bolus of vigorously chewing food never potentially damages the walls of the esophagus. On the contrary, eating rapidly and swallowing large mouthfuls contributes to the reflux, which can damage the lining of the throat and esophagus.

Chewing is important to oral hygiene. The mouth is almost constantly flushed with saliva, which flushes food debris away and protects your teeth from decay. Saliva contains enzyme, lysozyme, which helps to protect against bad bacteria. Saliva can actually destroy some bacteria.

The bicarbonate and water in saliva may activate the enzyme cellulase, which digests the fiber (cellulose). Chewing properly helps to break down the cellulose found in raw vegetables.

The combination of the saliva and vigorous chewing helps the body fully digest raw vegetables and receive their nutrients. Many people, who state that they could not eat fresh vegetables, actually do not chew them well

Slowing down during mealtimes means taking care of your health and savoring gastronomic pleasures! The great news is that we can control our habits of chewing.

How Do We Control Our Habits?

> In the beginning, you have to remember and focus on proper chewing. Everything is in your mind. Enhance your own knowingness about what is best for your health and examine the health benefits of slow and vigorous chewing. We often use customized self-hypnosis CDs for our patients. By listening to the CD, one can send the right messages to his/her subconscious mind in the privacy of their home. Customize CD can be ordered at http://www.biotherapy-clinic.com/custom_cd.html.

- > Do not eat in a hurry, in front of a TV or computer, while playing videogames, while reading, or “on the go.”
- > Sit down to eat and focus on food in front of you. The goal is to enjoy each mouthful and intend to receive the maximum flavor and satisfaction.
- > Take small bites and chew well.
- > Aim to chew each mouthful at least 15 times before swallowing if you are in the *acidic pancreas and bile* stage, 20 -30 times before swallowing if you are in the *pancreatic deficiency* stage and 50 times before swallowing if you are in the *pancreatic failure* stage.
- > Drink plenty of the healing mineral water, herbal tea and regular water 30-40 minutes before meals.

Without poor chewing habits, there still are a few items that can negatively influence chewing such as problems with teeth, aging, taking some medications and some diseases.

According National Institute of Dental and Craniofacial Research in US, over 400 medications have the potential to produce less saliva and cause dry mouth. Medications used to treat hypertension, anxiety, depression or psychosis cause the most difficulty. Antihistamines, antispasmodics, cancer-chemotherapy drugs, decongestants and muscle relaxants often cause dry mouth. <http://www.nidcr.nih.gov/oralhealth/topics/drymouth/drymouth.htm>

According to the Merck Manuals, “Many older people have dry mouths. Although aging itself affects moisture in the mouth only slightly, it does make people more susceptible to conditions that dry the mouth, and older people are more likely to take drugs that may dry the mouth. For many people, a dry mouth is only an occasional annoyance. For others, it is a persistent problem that interferes with tasting, chewing, swallowing, speaking, and wearing dentures. Persistent dry mouth is usually a symptom of a disorder or a side effect of a drug”.

<http://www.merckmanuals.com/home/sec08/ch111/ch111a.html>

Many diseases effect saliva flow such as: Sjogren's syndrome, bacterial and viral infections, poorly controlled diabetes, salivary-gland stones, tumors, Alzheimer's disease, diabetes, anxiety, HIV/AIDS, depression, Bell's palsy and Parkinson's disease. Try to solve dry mouth with your doctor, dentist, or other medical practitioner.

Many individuals have a dry mouth and sticky saliva because they are dehydrated. The average person creates around 1-1.2 liter of saliva a day, which is presumed as the same amount of water that needs to be drank daily.

All of these conditions have a negative influence on proper chewing and, thus, digestion and particularly pancreatic health.

Interesting facts at a glance:

Chewing is critical to digestion

Improper chewing usually occurs when people are in a hurry

The chemical process of digestion begins with the chewing and mixing of food with saliva. Saliva contains enzymes that contribute to the chemical process of digestion

Saliva helps to lubricate the food and makes it easier for foods to pass through the esophagus

Improper and hurried chewing leaves large chunks of food moving down the esophagus into the stomach and beyond

The result is undigested food, which breeds pathogenic bacteria and yeast and causes fermentation, gas and rotting inside the gut

Fermentation and rotting can damage the intestinal lining and cause irritation and inflammation

Truly chewing food will make a person feel more satisfied with less food, while enjoying it more

Fast eating is a risk factor for Metabolic Syndrome, obesity, high cholesterol, belly fat and, certainly, for many digestive (pancreatic) disorders

Rapid eating contributes to Gastro-Esophageal Reflux Disease (GERD)

Proper chewing is important to oral hygiene

Chewing activates the food enzyme cellulase that helps to break down the fiber cellulose that is found in raw vegetables. This decreases common complaints by eating raw foods such as gas, bloating and cramps

Every person can control his or her chewing habits just by focusing on the proper way to chew

Age, some medications, and diseases may dry the mouth

Drinking 1.5 – 2 liters of water is important for the salivary gland to produce enough saliva

Proper chewing has beneficial impact on pancreatic health and the digestive system as a whole.

Drink your foods and eat your liquids at all times

SUPPLYING THE BODY WITH NATURAL DIGESTIVE ENZYMES FROM FOOD

For all readers

For almost the entire history of *Homo sapiens*, we have been hunter-gatherers and our digestive system, genetically and physiologically, is designed for this way of eating; therefore, as much as possible, we need to eat similarly to our ancestors. Today, it is impossible to eat wild food

strictly as hunter-gatherers. There is not much of a food supply for it; therefore, we cannot advise to eat only a strict hunter-gatherer diet.

Nevertheless, we can make many smarter choices, presided over by a few simple principles to keep the pancreas, digestive system and our whole body healthy.

The main method in keeping the pancreas healthier is by supplying the body with natural digestive enzymes from food

The authors strongly believe that the pancreas is a main organ for the enzymatic system in the body. Dividing the enzymes into digestive and metabolic categories is convenient but conditional. After acting as catalysts, pancreatic digestive enzymes are absorbed in the distant part of the small intestine, eventually circulate in the blood, and possibly take part in many metabolic, enzymatic cascade processes.

There is the idea that we are born with a maximum capacity of digestive and metabolic enzymes. During our lives, we constantly lose this capacity and cannot restore it naturally. Up to now, this idea has not been proven physiologically or scientifically.

Our organism is a dynamic system that always changes. All our cells, organs, and systems have cycles of developing, living and dying. The pancreas is a main organ for the enzymatic system in the body and also has lifecycles. Exocrine pancreatic activity is usually strong in the youth, peaks at 20-30 years of age and then declines to very low levels after the age of 70.

Fast exhaustion of the exocrine pancreatic function depends on the overwork of the pancreas by eating processed “dead” food without natural digestive enzymes

Why is the food in a “dead” state?

Our metabolism had developed in situations when food usually was scarce. The only food available was beneficial, unless it was rotten or spoiled. The process of rotting or spoiling requires the action of enzymes. For example, cut a fresh apple and in a few minutes, it changes its color and starts spoiling. This is an enzymatic process.

Our ancestors, not knowing anything about living digestive enzymes, began stopping this process since the development of humanity. It was essential for their survival. *Homo sapiens* tried to kill the living enzymes inside the foods for the purpose of food conservation to make them last longer when the food supply was getting low. Various conservation methods included sun drying, freezing in the ice and digging in the soil. Later, the methods included fire for cooking and frying.

Century by century, all progress of technology was used by food manufactures to kill or destroy living enzymes inside food to stop spoiling and increase the food's shelf life. Now we have bread, milk, meat products, grains, vegetables and fruits, which may be preserved without rotting or spoiling for months, years and even decades.

We cannot change the world's advancement, but we can make smarter decisions to obtain more living digestive enzymes from our food. The easiest way to obtain them is by eating fresh, raw vegetables, fruits, nuts, seeds, eggs, and in some situations, fresh milk, or fish.

Food is a source of natural digestive enzymes. The biological rule is that everything or everyone that is eaten, have natural digestive enzymes for better self-digestion by the organism that eats it.

Most people consider that only a vegan diet can match this principle. We avoid the discussion that humans are "natural" fruitarians, vegetarians, herbivores, carnivores or omnivores. The point of discussion here is the importance of the natural food digestive enzymes. In fact, studies of hunter-gatherer tribes show that many of them cooked about half of their food.

Research of eating habits of non-human primates, the diet of our prehistoric ancestors, the hunter-gatherer tribes, shows that their foods had plenty of natural digestive enzymes. Extreme diets - diets that are 100% of a specific food or narrow food category, are not very common in nature, but what is common in nature is a diet filled with natural digestive enzymes.

There is only one healthy diet: the diet that has an abundant amount of natural digestive enzymes

Here are some ideas how to obtain natural digestive enzymes from food sources.

Chapter19-Raw Foods

Almost everybody knows about the benefits of fresh organic vegetables and fruits. They have an abundant amount of living digestive enzymes, vitamins, minerals, trace elements, bicarbonate and carbohydrates, but they are not a reliable source of proteins and fats. Let's look at forgotten but very important raw foods, which for thousands of years have served many generations as a healthy nutritional and relatively cheap source of fats and proteins.

a. Raw Eggs

Raw eggs are nature's blessed food. Mother Nature wisely placed all substances in the egg, which are required for the development of an whole baby chicken. For thousands of years, eggs have been considered one of nature's best foods and rich in the highest quality of essential nutrients.

A controversial topic for modern Americans is about eating or not eating eggs. The problem with eggs started almost 100 years ago when one Russian pharmacologist fed rabbits an enormous amount of egg yolks. Typically, rabbits don't eat eggs. Sure enough, after this unnatural eggs

diet, many rabbits died and cholesterol deposits were discovered in their arteries. Following these unnatural experiments, doctors started thinking that cholesterol in food could cause atherosclerosis – the problem when cholesterol and calcium is deposited in arteries and narrowing them. Yet, numerous studies put this theory in doubt.

Some studies have shown that the cholesterol in raw eggs does not raise cholesterol levels in the body. Furthermore, raw egg yolk contains lecithin, an important nutrient that helps the body to process fats and cholesterol.

Even with thirty years of accumulated research showing that dietary cholesterol has only a small effect on plasma cholesterol levels and that dietary cholesterol from eggs has little relationship to heart disease incidence, egg restrictions have become a staple of American dietary folklore easily incorporated into our fat-phobic, cholesterol-phobic lifestyles.

In the article, *A Review of Scientific Research and Recommendations Regarding Eggs* by S.B. Kritchevsky, PhD, there are many important updated facts about egg consumption. [333] For example, Japan has some of the lowest rates of coronary heart disease in the developed world. The Japanese diet frequently incorporates eggs but in the context of a diet relatively low in total fat and saturated fat. Interestingly, over the period of declining heart disease rates in Japan, per capita egg consumption increased. Thus, the Japanese experience suggests that egg consumption is consistent with low coronary risk in the context of an otherwise heart healthy diet.

The famous Russian professor V.F. Zelenin MD, found no increase of the cholesterol levels in workers of poultry farms, despite the fact that those people ate 7-10 fresh eggs (with yolks) daily during a few years.

The most recent guidelines from the American Heart Association represent a departure from the past. There is recognition that simply avoiding certain foods or certain nutrients will not lead to better health if the diet as a whole is inadequate.

In the United States, there was a national nutritional experiment to remove natural fat from food products. After 50 years, the slogan “*No fat, no cholesterol*” has dominated the food labels, one-half of all Americans are overweight, have Metabolic Syndrome or diabetes. Instead of eating eggs, butter, whole milk and cream people began eating many artificial products such as margarines, ‘trans fats’ and nonfat milk products. Because fat is considered unhealthy, people avoid fatty fish, avocado and nuts and instead eat a lot of sugars and white flour products.

All natural raw fatty foods have lipase – the enzyme that helps the body to digest fat. Lipase, which is present in raw, uncooked and fatty food, is called food lipase to indicate where it comes from: the food itself. If living lipase is derived from food’s sources, the pancreas does not have to expend its energy, making much of its own lipase, or borrow metabolic lipase from the rest of the body.

Lipase is very important for our health, not just in regard to the commonly recognized diseases of the fat metabolism such as overweight and underweight issues, cardiovascular disease, diabetes, strokes and degenerative muscle diseases, but also for skin problems, autoimmune diseases, degenerative diseases of the brain and nervous system, cancer, and also for general rejuvenation and regeneration. Lipase deficiency arises when we habitually eat food low in lipase and fat. Do you remember “*No fat, no cholesterol*” slogan?

As we age, pancreatic lipase production also declines. The combination of declining lipase production, reduced bile flow, and diet with no-fat foods leads to chaos in the lipid metabolism, lack of fat-soluble vitamins (A, E, D, K), deficiency of the phospholipids and essential omega-3-fatty acids. This, in turn, causes or contributes to the common symptoms of aging and the development of degenerative diseases that speed up the aging process.

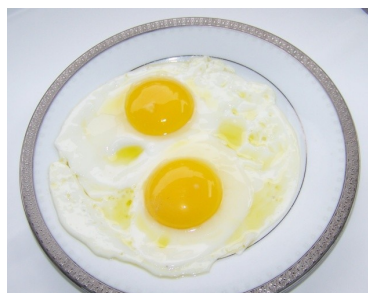
The natural solution to lipase deficiency is a diet that is high in the natural food lipase

Naturally, all raw, fatty or oily foods have a high content of lipase. Lipase is destroyed when heated between 40 and 45°C; therefore, to improve eating and genetic or age-related problems of the fat metabolism, people need to maximize intake of raw, unheated and unrefined fats and oils.

Nowadays, it is difficult to obtain the lipase from the vegetable oils because lipase would cause the oils to spoil quickly and manufacturers attempt to remove natural lipase from oils to prolong the shelf life of their products. In order to obtain a high lipase intake from plants and animal sources, people need to consume whole raw fatty or oily foods.

Raw organically grown eggs are a very important source of natural lipase. We heavily stress the term “raw” because boiling, frying and baking eggs destroys the living lipase inside them, causing the eggs to become artificial. The process of cooking eggs destroys the very nutrition that our bodies so desperately need as the nature of proteins and fats is altered when exposed to heat.

When eggs are cooked (scrambled eggs, omelets or hardboiled eggs), the cholesterol inside the egg yolk is exposed to the air and heat. Contacting air and heat, the cholesterol in the scrambled egg yolk becomes oxidized and becomes artificial for our body product, potentially contributing to atherosclerosis. If you are an eggs lover but do not like to eat them raw, you can prepare them poached or sunny-side-up.



Eating raw eggs is very common in European countries. European mothers have used a remedy of raw eggs mixed with raw butter and raw honey for weak and sick children and conditions such as rickets, tuberculosis. In some countries, very ill individuals are advised to raise their own chickens or to buy fresh chicken eggs from a nearby henhouse.

Mother Nature did not make a mistake. Raw eggs are a superior food. The protein in eggs is so high in quality that it has been used as the standard against which all other proteins are measured. Eggs are rich in potassium, phosphorus, folic acid, pantothenic acid, vitamin B-12, biotin, thiamine, niacin, lecithin, the fat soluble vitamins A, D and E, the amino acid methionine, and, in some cases, omega-3 essential fatty acids. Nutrients in the raw yolk help you digest and assimilate the whites, and vice-versa. Eggs are the ultimate, complete, fast food and should be taken in its entirety, yolk and egg white together. Three raw whole, organically grown eggs taken in the morning a few times a week are an important part of any health program.

The health benefits of raw eggs for the pancreas and gallbladder include:

- *Supplying the body with natural digestive enzymes and other essential nutrients
- *Easy digestion of the yolk and egg white together
- *Bile production and elimination as well as gallbladder contraction
- *Providing essential nutrients for the brain, nerves, glands and hormones
- *Giving a wonderful boost to the immune system

It is wise to build up the amount of raw eggs consumed gradually. They are best taken by breaking them into a cup and swallowing as a whole product. It can be helpful to cut through the yolk with a knife or fork to make it easier to swallow. Raw eggs may also be blended with raw vegetables or with small amounts of goat milk, coconut milk, and avocado to improve the taste.

You can easily detect how fresh an egg is by immersing it in water. If it lies flat on the bottom, it is very fresh. The older the egg is, the more the blunt end will rise. If the egg stands on its tip, it is rather old but may still be used. If the egg floats, it is rotten.

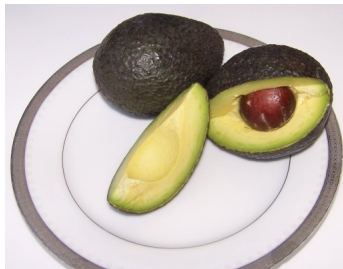
What usually draws attention with raw eggs are the risks of being infected with salmonella. However, the truth is that salmonella is generally a benign self-limiting illness in healthy people. The key principle to keep in mind here is that if you are healthy, a salmonella infection is not a big deal. According the *U.S. Centers of Disease Control and Prevention*, “illness usually lasts 4 to 7 days, and most persons recover without antibiotic treatment”.

<http://www.cdc.gov/salmonella/enteritidis/index.html#general>

Salmonella rarely affects organically grown chicken. It is surprising to find out how low the risk of contracting salmonella from raw eggs actually is. A study by the U.S. Department of Agriculture in 2002 found that only 0.003 % of eggs are infected.[176] Viewed another way, only 1 in every 30,000 eggs is contaminated with salmonella, which shows how uncommon this problem actually is.

Approximately 94% of salmonella cases recover without medical care. Some alternative doctors consider this infection easily treatable by using high-quality probiotics, which contain friendly bacteria. Good quality probiotics should be taken every hour until starting to feel better, and in most cases, the condition will improve within a few hours. However, for the elderly, infants, and those with impaired immune systems we do not recommend raw eggs.

b. Raw Avocados



Fresh organic avocado can be an important source of easy digested natural oils, essential fatty acids, fibers, and fat-soluble vitamins for people with lower exocrine pancreatic function. Although avocados are fruits, they have a high fat content between 71 to 88% of their total calories - about 20 times the average of other fruits. A typical avocado contains 30 grams of fat, but 20 of these fat grams are health-promoting monounsaturated fats, especially oleic acid.

Raw avocado is a good source of food lipase – the enzyme that promotes digesting the fats. Because of that, oils in avocados are easy to digest without a large effort by the pancreas. Due to the high content of food lipase, avocados act as a “nutrient booster” by enabling the body to absorb more lipid (fat) soluble nutrients, such as alpha and beta-carotene, zeaxanthin and lutein, and fat soluble vitamins (A, D, E, K) in foods that are eaten with the avocados. Avocados are high in beta-sitosterol, a compound that has been shown to normalize cholesterol levels.

Avocados have the highest protein content of any fruit. Avocados contain more potassium than bananas. Avocados are champions among fiber containing foods as well. Avocados are a good source of vitamin K, dietary fiber, vitamin B6, vitamin C, foliate and copper.

It could be said that a raw avocado a day keeps the doctor away! Avocados are an excellent source of glutathione; an important antioxidant that researchers say is essential in putting off aging, cancer, and heart disease.

Avocados need to be eaten only while fresh and raw, to keep food lipase active, and to prevent oil oxidation.

c. Coconuts and Coconut Oil

For individuals lacking a medical background

Similar to eggs, coconut oils have been charged with a crime they did not commit and they are the victims of wrong propaganda, which call all saturated fats unhealthy.

Pancreatic lipase is responsible for digesting almost 90% of lipids (oils and fats) from food. This is why digestion of lipids and lipid-soluble vitamins is diminished in all pancreatic disorders. Patients with chronic pancreatitis usually feel worse after eating fatty foods. In the *pancreatic failure* stage, Malabsorption Syndrome is developed because the organism cannot completely digest fats and eliminates them while they are still undigested (fatty stool).

Food scientists have looked at different kind of oils that do not require pancreatic lipase for digestion. The most researched is coconut oil. Coconut oil is unique because it provides a fast and easy source of nutritional fats without demanding the pancreas to manufacture high amounts of digestive lipase.

Eating foods containing coconut oil is like putting high-octane fuel into the car. The car runs smoother and receives better gas mileage. Similarly, with consumption of coconut oil, the body performs better because it has more energy and greater endurance. Coconut oil is used medicinally in special food preparations for those who suffer from digestive disorders and have trouble digesting fats. For the same reason, it is also used in infant formulas for the treatment of malnutrition. More info about the healing benefits of coconuts can be found in the book “*Coconut Cures*” by Bruce Fife.

If you are confused about what fats to eat because of the barrage of advertisements, incorrect language and misinformation, here is some simple advice: consume unaltered raw, natural oils and fats that have been used traditionally for hundreds or thousands of years and avoid oils that have been chemically modified or created in a laboratory. Unaltered raw, natural oils and fats are rich in content of natural food lipase; thus, this is the key of their benefits.

Evidence shows that, in areas where the coconut oil is a main source of fat, people are slim and healthy, live long and suffer less from digestive problems. People in countries, where the coconut is an important part of their diet, have lower rates of heart disease and cancer. For example, a report by the National Cancer Institute lists Thailand as having the lowest cancer rates for both men and women out of 50 countries studied. Thailand has the highest coconut consumption in the world.

For individuals with a medical background

The general term used for the main form of fats found in food is triglycerides because the structure of a triglyceride is a glycerol plus three fatty acid molecules. Classifications of fatty acids are based on the lengths of the carbon chains. There are short-chain fatty acids (SCFA), medium-chain fatty acids (MCFA) and long-chain fatty acids (LCFA). Three fatty acids joined together make a triglyceride, so there are short-chain triglycerides (SCT), medium-chain triglycerides (MCT), or long-chain triglycerides (LCT).

The vast majority of the fats and oils you eat, whether they are saturated or unsaturated or come from an animal or a plant, are composed of long-chain triglycerides. Probably 98 to 100% of all the fats we eat consist of LCT. Coconut oil is unique because it is composed predominately of MCT. The size of the fatty acid is extremely important because physiological effects of medium-chain fatty acids in coconut oil are distinctly different from the long-chain fatty acids more commonly found in our diet. Fat molecules are structured in “chains.” As the name implies, medium-chain triglycerides (MCT) are shorter than the long-chain triglycerides. Medium-chain triglycerides need much less pancreatic lipase to split fats on the medium-chain fatty acids (MCFA) - small particles, which can be easily digested in the small intestine. This makes the MCT more easily digestible than long-chain triglycerides.

MCT are easily digested, absorbed, and put to use nourishing the body. Unlike other fats, they place little strain on the digestive system and provide a quick source of energy necessary to promote healing.

For people with pancreatic problems, it is very important to consume raw coconut water or milk, coconut meat or organic, unrefined, cold-pressed, extra-virgin coconut oil

All those products have medium-chain triglycerides oil (MCT oil) and natural food lipase that enhance their health benefits by:

- > Substituting or supplementing fat calories in the diet of patients who poorly digest, absorb and utilize conventional food fats
- > Efficiently breaking down and absorbing different types of fat
- > Requiring fewer enzymes and bile acids for digestion, so that supplementary dietary fat and calories can be provided in patients who might otherwise have compromised nutrition
- > Allowing absorption of necessary fats and improving the absorption of fat-soluble vitamins, minerals and protein
- > Providing 115 calories in one teaspoon of MCT
- > Having the ability to be mixed with vegetable blends, salads and sauces
- > Being digested immediately to produce energy and stimulate metabolism and appearing to mimic the effects of carbohydrate metabolism rather than fat metabolism

This final fact about MCT being digested immediately to produce energy is very important for weak individuals with chronic indigestion, especially those with chronic pancreatitis or diminished pancreatic exocrine function.

Digested medium-chain fatty acids (MCFA) are moved directly to the liver and converted into energy; therefore, the body gets a boost of energy whenever they are eaten. In addition, because MCFA are easily absorbed by the energy-producing organelles of the cells, metabolism increases. This burst of energy has a stimulating effect on the entire body.

d. Goat's Milk



Humans desperately depend upon mothers' milk for as a minimum the first six months of life. In mature age, nobody in the natural world drink other species milk, but human do. Even practically healthy people may suffer from lactose intolerance or hidden allergy to cow milk. A protein allergen that is known as alpha s1-casein found in high levels in cow's milk can be responsible for many allergic reactions; therefore, cow milk is not a "best" choice for persons with digestive problems.

Between different kinds of milks, a few goat's milk products may be digested better, especially by persons with decreasing of the pancreatic function. Some of them are fermented goat's milk yogurt with probiotics and homemade goat milk cheese. During the process of the fermentation, bacteria predigest these products, which can create some health benefits:

- Bacteria produce natural digestive enzymes such as proteases and lipase that can help our own digestion
- Predigested complex proteins and carbohydrates in the goat's milk are less allergic to humans
- Fermented food is abundant in lactobacillus, which are a significant part of friendly intestinal flora
- Some anti-inflammatory compounds (short-chain sugar molecules called oligosaccharides) to be present in goat's milk
- Goat's milk is a good source of vitamin B2, potassium, high-quality protein
- Goat milk protein forms a softer curd, which makes this protein more easily and quickly digestible
- Fermented goat's milk yogurt and homemade cheese have alkalizing properties

- Goat's milk contains a higher content of medium chain fatty acids, which require less pancreatic lipase to digest them
- Also these medium chains fatty acids such as capric and caprylic acids inhibit Candida-yeast overgrows
- The size of goat milk fat globules is about 2 micrometers. These smaller fat globules provide better contact with lipase - enzyme that digests the fat by comparison with other milks

Choose goat's milk with no preservatives, antibiotics, or growth hormones. Start from the small amount of the goat's milk products to adjust digestive system to them.

Interesting facts at a glance:

The main principle for keeping our pancreas healthy is to supply our bodies with natural digestive enzymes

The pancreas is the main organ for enzymatic activity in the body

Exocrine pancreatic activity is usually strong in the youth, reaches a peak around 20-30 years of age, and then declines to very low activity after 70 years of age

Eating too much acid-producing, processed “dead” food without natural digestive enzymes speeds up the declining of exocrine pancreatic function

Food manufacturers use technological advances to kill or destroy the living enzymes inside foods in order to increase their shelf life

There is only one healthy diet - a diet that has an abundant amount of natural digestive enzymes

Raw eggs are nature's most perfect foods as they are rich in the highest quality essential nutrients

Raw eggs have lipase; an enzyme that helps the body to digest fat and fat-soluble vitamins.

Raw eggs contain potassium, phosphorus, folic acid, pantothenic acid, vitamin B-12, biotin, thiamine, niacin, lecithin, the fat-soluble vitamins (A, D and E), the amino acid methionine, and omega-3 essential fatty acids

Fresh organic avocado can be an important source of easily digested oils, essential fatty acids, fibers, and fat-soluble vitamins

Raw avocado is a good source of food lipase, the enzyme that promotes fat digestion

Avocados must only be eaten fresh and raw to keep its food lipase active and to prevent oil oxidation

Coconut oil is unique. It provides a quick and easy source of nutritional fats without demanding the pancreas to manufacture a high amount of digestive lipase

For people with pancreatic problems, it is very important to eat and drink raw coconut water, coconut milk, coconut meat, or organic, unrefined, cold-pressed, extra-virgin coconut oil

Persons with low pancreatic function can easily tolerate fermented goat's milk yogurt with probiotics and homemade goat's milk cheese

ADDITIONAL WAYS TO RECEIVE NATURAL DIGESTIVE ENZYMES

The simple way to receive natural digestive enzymes is by consuming a lot of fresh vegetables with each meal. Let's discuss some practical ways for people to include more vegetables into their diets.

Chapter 20-Sprout Your Way to Pancreatic Health

For individuals lacking a medical background

The enzymes are the life force. It is of no wonder that Mother Nature put the most potent enzymes in the reproductive cells. These include seeds, beans, legumes, grains and nuts in plants, and eggs and roe in birds and fishes. All are nutritious foods for humans. People have eaten sprouted seeds for rejuvenation and healing for thousands of years. Sprouts have been acclaimed as the "most enzyme-rich food on the planet." When you eat a sprout, you are eating a tiny, easy-to-digest plant that is at its peak nutritional value.

Through germination (beginning to sprout), the seed releases all of its stored nutrients in a burst of vitality as it attempts to become a full sized plant. Sprouts are that stage in the growth of a seeds where all of the seed's biological matter and energy are directed to one and only one purpose: Growth! This means that the seed and grains must convert, as much of the biological matter it contains, into energy to feed that growth. This is truly an enzymatic process.

Fresh, raw sprouts are living foods with their utmost peak of nutritional value just before being eaten. Once they have been consumed, they help digest themselves, thereby giving the pancreas a much-needed rest and enabling it to begin regenerating and repairing itself.

Sprouting is an enzymatic process, when nature makes seed grow only if they have a suitable environment for enzymes to work. Inside the seeds, beans, grains and nuts there are special enzyme inhibitors, especially protease inhibitors, which suppress the sprouting process. Many raw food nutritionists recommend avoiding unsprouted grains, nuts and seeds because they contain enzyme deactivators that suppress the body's own digestion of them. From the authors' experience, people with diminishing exocrine pancreatic functions tolerate nuts and seeds poorly, especially when roasted. Eating them can cause epigastric fullness, gas, bloating and cramps. On the contrary, soaking raw nuts and seeds at night make them easier to digest.

Raw seeds, beans, legumes, grains and nuts are loaded with enzyme inhibitors, which are deactivated by the addition of water. Moisture, warmth, and in most cases, indirect sunlight are necessary for sprouting.

Fortunately, during germination and sprouting of grains and seeds, many enzyme inhibitors are effectively neutralized, whilst, at the same time, the activity of beneficial plant digestive enzymes is greatly enhanced. Enzymes are to a great extent activated in the sprouting process

Sprouting

| | | |
|---|--------------|-------------------------------------|
| Before sprouting | ==>==>==>==> | After sprouting |
| <i>more enzyme inhibitors</i> | | <i>less enzyme inhibitors</i> |
| <i>less plant digestive enzymes</i> | | <i>more plant digestive enzymes</i> |

If a person eats mostly cooked and processed foods, the main gland that produces digestive enzymes, the pancreas, overworks and becomes often enlarged even in practically healthy people.

All fresh grasses, legumes, plants, fruits, and vegetables contain natural digestive enzymes needed for their digestion. Sprouts provide abundant plant digestive enzymes for self-digestion thus alleviate the pancreatic digestive process.

The food enzymes in sprouts not only work to digest themselves, but help the body to digest other foods as well

The beneficial action of sprouts on exocrine pancreatic function and whole health include:

- > Sprouts are alkaline food, full of the easy-to-digest minerals and trace elements. Sprouts are an especially good source of easy-to-use minerals
- > People who consume a diet high in foods rich in digestive enzymes have increased energy and vitality
- > Sprouts are a good source of fibers
- > Sprouts provide a good supply of vitamins such as A, E, C, B complex
- > Sprouts increases in essential fatty acids

> An increase in lipase activity has been reported during germination and sprouting. Increased lipase activity (lipolysis) causes splitting of lipids – triglycerides to glycerol and fatty acids that promote digesting plants' oils

To summarize: sprouts are a wonderful and healthy food. Sprouting causes increased activities of plant digestive enzymes, improvements in the contents of total proteins, fat, certain essential amino acids, total sugars, B-group vitamins, and a decrease in dry matter, starches and anti-nutrients enzyme inhibitors.

Sprouts are easily digested and they do not overload the system, like cooked and processed foods.

The nutrients in sprouts are easily digested and assimilated by the digestive system without an additional effort on the pancreas

There are varieties of sprouted seeds, which can be added to the diet. Below are some examples of the sprouting plants that are beneficial for the pancreas.

Leafy sprouts: *Alfalfa, Clover*

Bean sprouts: *Mung beans, Lentils, Peas, Green peas, Garbanzo beans*

Brassica sprouts: *Broccoli, Cabbage, Radish, Daikon*

Grains: *Wheat, Barley, Rye, Triticale*

Nuts/Seeds: *Almond, Pumpkin, Sunflower*

Alliums: *Garlic, Onion*

Exotic: *Fenugreek, Buckwheat, Quinoa, Millet*

Micro-Greens: *Arugula, Cress, Flax*

Adding sprouts to your favorite salads, soups and main dishes will make a world of difference to your health. If people receive digestive enzymes from food, more metabolic and digestive enzymes are freed to avoid disease and maintain human health. Sprouts need to be chewed or blended to a soft pulp, consistent for good digestion.

We have to give a word of caution. People with pancreatic disorders often suffer from food sensitivity and hidden or obvious allergies. Everybody is unique; thus, even a very beneficial food must be introduced slowly. Try to eat a variety of sprouts. Eating the same sprouts consistently is not recommended. Listen to your body. Your body knows what is good for it.

True sprouting (developing roots) by pumpkin seeds, almonds, and walnuts is quite rare. It is most ideal to soak them overnight and then eat them. Legumes are very high in protein and enzyme inhibitors. It is difficult to digest them; therefore, they can cause gas in some cases. Among legumes, sprouted mung beans are considered the easiest to digest.

Peanuts are often contaminated with aflatoxin, a fungal toxin, so it is more essential to eat other sprouts.

Bacterial, mold spoilage and rancidity, are potential problems when sprouting. Ways to keep sprouted seeds fresh longer are by adding hydrogen peroxide, grapefruit seed extract or apple cider vinegar into soaking water. Rinsing and draining well is very important. After the sprouting is complete, keep the sprouts refrigerated.

Fresh sprouts can be prepared in advance by storing them in the fridge and then munching on them when hungry. They can even be taken on the road in sandwich bags. Properly stored, dry and fresh sprouts can be stored for up to 6 weeks in the refrigerator, but the fresher the sprouts are the better. Never refrigerate wet sprouts.

Sprouted seeds grown at home and harvested at the dinner table are the freshest food imaginable. They are organically grown and full of life and energy. Sprouting is very economical. For a few cents, large quantities of sprouted seeds can be produced.

With few resources and very little time or effort, lots of live food can be produced at home all year round. They also take up little space. Children also can learn about the principles of growing food and may be involved in the process. In one week, they can grow delicious baby greens and mini-vegetables into a salad.

Eat sprouts regularly, as they are nature's wonder food, rich in the essential alkaline minerals, and are the most nutrient dense foods people can eat

Chapter 21-Iron Teeth: Blending is the Key to Pancreatic Health

For individuals lacking a medical background

Blending is the easiest and most efficient way to provide food that is both nourishing and easy to digest. If we blend foods, we can be certain that we will receive their full nutritional benefits. If you are ill, blending your food will relieve your body of some of the extra effort required for digestion, so this energy may be better spent on healing the illness.

For people complaining that they cannot consume a lot of vegetables and fruits, blending is a simple and useful way to obtain plenty of healing nutritional foods.

Blended living foods are full of vitamins, minerals, enzymes and other nutrients, and since they are easy to digest and assimilate, they provide our body more of what it needs to keep functioning at its peak condition.

The most important key to health is to use blended foods frequently throughout the day.
Blending can:

- Help consume more vegetables and fruits per day
- Normalize the acid-alkaline balance and blood sugar balance
- Supply the body with minerals, trace elements and vitamins
- Increase the amount of natural digestive enzymes in food
- Assist people with chewing problems
- Promote easy digestion
- Restore imbalanced intestinal flora
- Decrease toxicity in the body
- Support a healing action on the digestive, immune, hormonal and nervous systems
- Normalize and decrease the strain of elimination
- Help to avoid “bad” food
- Help people with low pancreatic function to digest the fibers

Beneficial Actions of Blending on the Pancreas and Whole Body

The federal government’s evidence-based nutritional guide, the *2010 Dietary Guidelines for Americans*, suggests to “Making half your plate consist of fruits and vegetables,” and recommends an “intake of at least 2 ½ cups of vegetables and fruits per day”. Even though, many Americans are aware of health benefits of vegetables and fruits, few eat them in the recommended amounts.

Here, are some reasons provided for not eating fruits and vegetables:

“I don’t like them”

“I eat enough vegetables such as French fries, potato chips and mashed potatoes”

“I don’t have a time to prepare salads; I am usually in a hurry and extremely busy”

“I cannot eat vegetables or fruit in my work place”

“I don’t have time to chew my vegetables or fruits”

“I don’t have enough teeth to chew them”

You can find hundreds of reasons not to eat healthy.

Try to find ONE, very serious reason to eat healthy. Examples of reasons to eat healthy include:

“I want to lose weight”

“I have belly fat or cellulitis”

“I want to have beautiful, healthy looking skin”

“I am sick and tired of having constant bloating and gas”

“I don’t have my bowel movements regularly”

“I have a problem with the health of my pancreas, liver, colon, heart, etc.”

“My cholesterol and blood sugar are high”

“Cancer runs in my family, and I am afraid I will also get cancer”

“I am afraid of osteoporosis”

Blending is a very convenient method of cooking to eliminate all excuses and is the easiest and most efficient way to provide food that is both nourishing and easy to digest. This is an easy way of preparing food for the young and old, lazy and busy, men and women and even for older kids. Blending is most important for people with digestive and pancreatic problems.

For busy individuals, it would be quick and easy to prepare all the ingredients without liquids in a container, in the evening, and keep them in the refrigerator. If you are usually in a hurry, in the morning, it will take only 1 minute to eat the healthiest breakfast (for example, a vegetable blend with a piece of chicken or goat cheese). There is not much work to do.

There are portable, small blenders in the market, which can be brought to the workplace or school in a small cooler. Blending your food at work will save you a lot of time and money and provide health and longevity.

If we talk about blending we have to focus on the art of chewing. Our grandmother’s advice “Don’t rush, chew your food vigorously” is exactly right. There are the iron teeth for rescue - the blender.

For people with pancreatic disorders and decreasing of exocrine pancreatic function, blending is an important natural remedy for healing

If you think that blends have the same taste and are not delicious, or you think there are not many choices, look at the tables below for ingredients. These tables are not the law, just some ideas.

You can create thousands of delicious and healthful recipes that you can enjoy. Don’t be afraid to experiment - it is the mother of all inventions!

Variety of Vegetable Blends

Vegetables: tomato, avocado, cucumber, beet, carrot, daikon, celery, bell pepper, cabbage

Herbs: cilantro, basil, mint, parsley, dill, dandelion, kale, chard, spinach, romaine, cilantro, parsley, scallions, collard, arugula, escarole

Spices: garlic, onion, green onion, ginger, turmeric, rosemary, pepper, apple cider vinegar, cayenne, clove, cinnamon, cardamom, Bragg's liquid aminos

Oils: cold pressed, virgin olive oil, coconut oil, avocado oil, walnut oil, sunflower seed oil, flax seed oil

Sprouts: alfalfa, clover, mung beans, broccoli, buckwheat, quinoa, flax

Greens: spinach, lettuce, watercress, red cabbage, baby greens (baby lettuces, green romaine, Lollo Rossa, chard, mizuna, arugula, radicchio), parsley, dill, basil, cilantro

Squash: zucchini, some pumpkins

Seeds: flax, hemp, pumpkin seed, sunflower seed, sesame seed

Nuts: almond, Brazil nut, walnut, pecan, pine nut

Miscellaneous: lecithin, bee pollen, sea weeds (kelp, dulse, nori, arame), sauerkraut, probiotics, whole egg or egg yolk

Liquids: clean, purified or distilled water, fresh vegetable juice, vegetable broth, green tea, ice cubes, soy milk, rice milk, almond milk, coconut milk, coconut water

Some advice:

- Experiment with foods you enjoy and what benefits your condition
- Make your own recipes
- Do not restrict daily amounts (eat or drink 0.5 - 1 liter or 2-5 cups per day). Listen to your body; it will prompt the correct amount and proper ingredients
- Blend green vegetables and other products that are organic and domestically grow
- Blend tomatoes, cucumbers, carrots, zucchini and bell peppers that have a skin and seeds
- Flax, hemp, pumpkin seeds, sunflower seeds, sesame seeds, almonds, Brazil nuts, walnuts and pecans should be soaked in water overnight
- Liquids such as soy milk, rice milk, almond milk and coconut milk should not have more than 6 grams of sugar per serving
- After preparation, drink the blend in the next 3 – 5 minutes; drink slowly and chew to mix the blend with saliva
- Vegetable blends can be consumed with any kind of food; fresh blends promote digestion of other nutrients, including proteins and starches

Variety of Fruit Blends

Fruits: apple, grapefruit, grapes, kiwi, lemon, lime, papaya, pineapple, plum, pomegranate, fig, orange, mango, date, pear, prune, cherry

Berries: blueberry, acai, blackberry, goji, raspberry, strawberry, cranberry, blueberry

Herbs: fresh mint

Vegetables: avocado, carrot

Miscellaneous: raw domestic honey, lecithin, bee pollen, royal jelly, dry coconut, stevia, cocoa powder, cocoa beans, cinnamon, probiotics

Liquids: clean, purified or distilled water, fresh fruits or vegetable juice, herbal tea, ice cubes, soy milk, rice milk, almond milk, coconut milk, coconut water

Some advice:

- You can think up of your own recipe and change an old recipe and enjoy what you drink
- Preparing fruit blends can be fun, easy, delicious, and a fast way to get plenty of vital nutrients for the whole family
- All fruits and other products should be organic and preferably domestically grown
- The amount of fruit blends should depend on one's tolerance and condition; the average daily consumption can be 2 – 3 cups
- Putting in account that fruits have a lot of fructose and glucose, the fruit blends, need to be restricted in people with overweight conditions and diabetes
- Except for citrus products, papayas, avocados, pineapples, pomegranates, etc., other fruits may be blended with their skin
- Certain fruits such as apples, pears and 2 ounces of grapes can be blended with seeds
- After preparation, drink the blend in the next 3 – 5 minutes; drink slowly and chew to mix the blend with saliva
- Drink fruit blends separately, 2 hours before or after other meals
- If your fasting blood sugar is more than 110 mg/dl or HbA1c is more than 6.5 mmol/L, restrict sweet fruits

Some people combine unsweetened fruits such as the papaya or apple with vegetables. There are no strict rules here, so make the blend fresh and drink it right away. This will bring living digestive enzymes into the body.

<http://www.rawfamily.com/> It is the official site of Victoria, Sergei, and Valya Boutenko, otherwise known as The Raw Family. This website has a lot of information such as books, articles, videos and DVD's about the most nutritionally dense food available on the planet - greens.

Adding even one cup of a green smoothie daily to one's existing diet can dramatically improve his/her health.

For individuals with a medical background

Blending is vital in any case of indigestion. Mechanically dispersed food has been used in European dietology for hundreds of years. Small particles of liquefied food promote close connection of food substrates with digestive enzymes, increase the work surface and accelerate splitting up the proteins, fats and carbohydrates.

Blending decreases demand for pancreatic enzymes, that is especially important in the *pancreatic deficiency*.

Blending allows to consume a large number of the raw vegetables and fruits thus supply the body with natural digestive enzymes, minerals, vitamins, bioflavonoids, fibers, etc.

Minerals and bicarbonate from raw foods increase blood alkaline reserve hence normalize acid – alkaline balance.

Blending is very beneficial for removing toxic metabolites, free radicals and poisons from the human body through bile, kidney and colon. Raw vegetable or fruits blends widely use during chemotherapy, radiation, heavy metal chronic poisons. Blending is the simple way to defeat constipation.

Fibers in blends may have prebiotics action to promote friendly intestinal flora.

Chapter 22 - Juicing for Pancreatic Health

The technical revolution also brought another way of preparing food with natural digestive enzymes - juicing. Fresh vegetable and fruit juices have been used in many European natural health clinics for hundreds of years to treat many disorders and diseases with positive results.

Between many causes of digestive diseases, bad eating habits, quality, and amount of food are the most common. Nowadays, a person eats chemically altered, “dead”, toxic foods that do not provide a sufficient amount of natural enzymes, vitamins, minerals, trace elements and essential fatty acids.

Hence, the fresh juices from vegetables, greens, fruits, sprouts and herbs can supply people either with chronic health problems and those who just want to be healthy, with enormous amounts of these vital nutrients. Fresh juices have to be a very good part of a well-balanced diet to overcome a global epidemic of metabolic acidosis, dysbiosis, and digestive disorders.

To summarize, here are the general benefits of the fresh juices on the health of the pancreas and liver (bile):

- Fresh juices from vegetables, fruits, greens and sprouts are a great source of **natural digestive enzymes** to aid digestion. Digestive enzymes from juices help to decrease the effort of the pancreas to produce its own digestive enzymes
- Fresh juices are good sources of the essential **minerals** and **trace elements**. Minerals are the important components of the pancreatic juice and bile. Because of good bioavailability of minerals from fresh, presumably vegetable juices, they have an **alkalizing effect** on the pancreatic secretion and bile
- Raw vegetable, fruit juices and green drinks are an excellent source of water-soluble **vitamins** and precursors of some fat-soluble vitamins (beta-carotene). Vitamins serve as cofactors (coenzymes) for pancreatic digestive enzymes
- Fresh juices consist of many of the **phytochemicals** or **plant chemicals**, **antioxidants**, **bioflavonoids** and **chlorophyll**. Some of the phytochemicals have protective and healing properties for the pancreas, liver and other organs
- Fresh juices have body-cleansing properties. Fresh juices may help to remove toxic metals such as lead, mercury and aluminum by eliminating them throughout the kidney or bile. Components from juices **bind with radioactive residues** and remove them from the body
- Finally, fresh fruits and vegetables juices supply organisms with water that is vital for proper pancreatic health

Below there are various beneficial actions of some fresh juices on digestive ailments and fatigue.

| Juice | Gas, Bloating | Diarrhea | Constipation | Cramps | Fatigue |
|----------------|----------------------|-----------------|---------------------|---------------|----------------|
| Alfalfa sprout | | | | | yes |
| Apple | yes | | yes | | yes |
| Banana | | yes | yes | | yes |
| Beet | | | yes | | |
| Broccoli | | | yes | | |
| Cabbage | | | yes | | |
| Cantaloupe | | | yes | | yes |
| Carrot | yes | yes | | | yes |
| Celery | | | yes | yes | |
| Cucumber | | | | yes | |
| Daikon | | | yes | | |
| Fennel | yes | yes | | yes | |
| Garlic | | yes | | | yes |
| Ginger | yes | | | yes | |
| Grapefruit | | | yes | | yes |

| | | | |
|------------------|----------|----------|----------|
| Papaya----- | yes----- | yes----- | yes----- |
| Parsley----- | yes----- | yes----- | yes----- |
| Pear----- | yes----- | yes----- | yes----- |
| Pineapple----- | yes----- | yes----- | yes----- |
| Pomegranate----- | yes----- | yes----- | yes----- |
| Potato----- | yes----- | yes----- | yes----- |
| Pumpkin----- | yes----- | yes----- | yes----- |
| Spinach----- | yes----- | yes----- | yes----- |
| Tomato----- | yes----- | yes----- | yes----- |

To avoid any discussions concerning juices versus blends, or what ingredients are best, it is important to remember that everything depends upon a person's age, health conditions, wallet and personal experiences.

It is always a good idea to consult a knowledgeable health care practitioner to determine whether dietary changes will be beneficial.

The whole idea of juicing is based on a suggestion that fibers from plants do not have any nourishment; therefore, juices without fibers all have nutritional value, which easily travel to the system without digestion. Fanatical juicers have told people, and they are manipulated by commercials that juicing is a miracle cure for any conditions including cancer. Juicing, by itself, does not create health or miracle cures. Nevertheless, juicing may be a component of a healthy lifestyle and many healing programs if we understand the pros and cons.

Juicing in Exocrine Pancreatic Disorders

For individuals with a medical background

In the *acidic pancreas and bile* stage of the exocrine pancreatic deficiency, fresh vegetable and some nonsweet juice with their alkalizing, cleansing and nourishing properties can be very beneficial and may be consumed up to 2 -3 cups a day. A cup of juice with a meal may support digestion. Garlic, onion, ginger, fennel, cabbage, grapefruit and papaya may suppress the growing of Candida-yeast. These fresh juices also may be useful in functional dyspepsia and IBS.

The *pancreatic insufficiency* stage of the exocrine pancreatic deficiency, especially chronic pancreatitis, may be combined with a severe food sensitivity, intolerance or food allergy. If a person, with chronic pancreatitis or SIBO doesn't tolerate fibers, $\frac{1}{3}$ - 1 cup of fresh vegetable or papaya juice may aid digestion. Fresh vegetable juices have to be introduced gradually, one vegetable at a time in a small amount without "experimenting" with juice fasting. In their clinical practice, the authors observed severe exacerbations of chronic pancreatitis after juice fasting. Juice fasting is only for healthy individuals.

Dividing juices of vegetables or fruits is very conditional. By comparison, the tomato and avocado are fruits (they have seeds); however, the pineapple is a vegetable. In cases of any metabolic disorders such as overweight issues, Metabolic Syndrome, and particularly in diabetes, sweet juices are not advised.

In the *pancreatic failure* stage of the exocrine pancreatic deficiency, fresh vegetable juices that collect natural digestive enzymes (especially papaya, pineapple, fennel and pumpkin) may be helpful with prudence under the supervision of the knowledgeable health care professional.

Cautions in Juicing

Juice is a processed, concentrated food that does not exist in nature. The digestive system may react on the new food product differently. Juicing must be done with common sense. Too much of anything is not always good; “More is not always better.” In the case of pancreatic disorders, it is safe to begin juicing with ½ cup of fresh prepared, organic, mixed juice diluted with water. Then, gradually increase the amount to 2 -3 cups of juice daily. Never initiate new changes to juicing just because someone recommended it. Always observe the reactions of your body to these changes. If the body feels fine, then continue drinking the juice. Some juices may cause nausea, abdominal cramps, or heartburn. Decrease the juicing amount or take a break for a few days. For positive results, rotate vegetable/fruit juices.

The fructose and glucose from sweet juices are released exceptionally into the bloodstream and may increase the level of glucose in the blood and stimulate insulin production by the pancreas. It can cause both hypoglycemic and hyperglycemic reactions. Hypoglycemia is low blood sugar while hyperglycemia is high blood sugar.

Symptoms of low blood sugar (hypoglycemia), especially in the case of juice fasting, can include hunger, sugar cravings, anxiety, nervousness, palpitations, tachycardia, headaches, sweating and weakness. If hypoglycemia continues, symptoms become worse and may cause shakiness, dizziness, feeling of numbness (pins and needles), warmth, coldness, nausea, vomiting, abdominal discomfort, moodiness, crying, irritability, fatigue, migraines, blurred vision, slurred speech and a lack of equilibrium.

Hypoglycemia and sugar cravings force us to drink more sweetened juices. Sweet fruit juices cause a rapid rise in blood sugar. Thus, too much sugar in the juices creates hyperglycemia. In turn, too much glucose in the blood sends the signal to the pancreas to release more insulin. Too much insulin means low glucose in the blood. So, for individuals with Metabolic Syndrome, overweight issues or diabetes, it is recommended to drink more diluted vegetable and sprout juices or a reasonable amount of the nonsweet fruit juices.

Juice cleansing is very popular between some juicer enthusiasts. Cleansing action of fresh juices, especially juice fasting, may produce detoxification reactions such as nausea, vomiting, diarrhea, aches, fatigue, chills and headaches. There are a few ways to minimize cleansing reactions: undergo colon hydrotherapy, drink Karlovy Vary Healing Mineral Water and herbal teas (chamomile, peppermint, rose hips, ginger, etc.), perform light exercise, take baths, receive massages, undergo acupuncture and get more rest. If it is a severe reaction, just cut back or postpone the cleansing program.

Too much of fresh juices may promote both the harsh flow of bile (cholagogue action) and increase bile production and its excretion (choleretic action). In the cases of sphincter of Oddi dysfunction, gallbladder stones/inflammation and chronic pancreatitis, consuming fresh juices can worsen those conditions. To avoid exacerbation of symptoms, it is advisable to drink warm Karlovy Vary Healing Mineral Water 3 weeks before the juicing program.

The next concern is pesticides. It is known that commercially grown fruits and vegetables are sprayed with pesticides and other chemicals. Juicing can simplify the way for these toxic substances to get into the blood system. Thus, organic or pesticide-free, domestic grown vegetables and fruits are preferable for safety reasons.

By the authors' definition, juicing is drinking freshly prepared and immediately consumed juice. Do not store fresh juice for later consumption. When fresh juice becomes exposed to the air or kept in the refrigerator, it quickly loses its nutrient value – natural digestive enzymes. Natural enzymes are destroyed by heat, light, and oxygen. Fresh prepared juices quickly oxidize, as well. Thus, fresh juice has to be consumed almost immediately, in the next 5 – 10 minutes after being juiced. Be sure to “chew” juice vigorously to mix with saliva.

Juicing is an important and effective way to provide the body with a high level of quality nutrition in all stages of exocrine pancreatic deficiency: *acidic pancreas* and *bile*, *pancreatic deficiency* and *pancreatic failure*. Using juices for healing is recommended with the supervision of knowledgeable health care professional.

Interesting facts at a glance:

Sprouts are nutritious food for humans

Once consumed, sprouts help the human body by assisting it with digestion, thereby giving the pancreas a rest, which enables it to begin regenerating and repairing itself

During the germination and sprouting of grains, nuts and seeds, many of the enzyme inhibitors are effectively neutralized, and the activities of the beneficial plant digestive enzymes are greatly enhanced

The food enzymes in sprouts not only work to digest themselves, but help the body to digest other foods as well

Sprouts are an alkaline food; they are good source of digestive enzymes, vitamins, essential fatty acids and fiber

Sprouts need to be chewed or blended to a soft, pulpy consistency for good digestion

Blending, or mixing food in a blender, is the easiest and most efficient way to provide food that is both nourishing and easy to digest

Blending can help a person consume more vegetables and fruits daily, thus increasing the amount of consumed natural digestive enzymes

Blending can normalize the body's acid-alkaline balance

Blending supplies the body with essential minerals, trace elements, vitamins, phytochemicals and fibers

Blending can make eating a balanced meal easier for people with chewing (dental) problems

Blending promotes easier overall digestion; restores imbalanced intestinal flora, and improves elimination

Blending normalizes a person's blood sugar balance

Blending decreases toxicity in the body

For people with pancreatic disorders and decreasing exocrine pancreatic function, blending is an important natural remedy to aid healing

Nowadays, fresh vegetable juices are a necessary part of a well-balanced diet, and allow people to avoid the global epidemic of metabolic acidosis, dysbiosis, and digestive disorders

Fresh juices are good sources of essential minerals, trace elements, vitamins, phytochemicals and water

Fresh juices may help to remove toxins, heavy metals, radioactive residues, etc

Some fresh juices may alleviate digestive symptoms such as gas, bloating, constipation and diarrhea

Using domestic, raw and organic vegetables and fruits and freshly prepared and immediately consumed blends and juices enhances health properties of fresh blends and juices

In some cases, fresh juices may cause detoxification reaction; sweet juices are not for people with hypoglycemic attacks, Metabolic Syndrome, obesity, and diabetes

Using juices for healing is recommended with the supervision of a knowledgeable health care professional

Chapter 23-Eating Healthy and Nutritious with Convenient Fast Food

a. Cooking in a Thermos

For individuals lacking a medical background

A storage vacuum container, which provides thermal insulation, is commonly called a thermos. The German company Thermos pioneered evacuated insulation technology over 100 years ago and “thermos” has become a household name around the world.

In the thermos, the narrow region between the inner and outer wall is evacuated of air. Using vacuum as an insulator avoids transferring heat out and it is mainly used as storage for hot or cold beverages.

Nevertheless, not too many people are aware about another function of the thermos – the ability slowly cooks food.

Slow cooking has a hundred year old history in many cultures that used brick ovens. As with other old-fashioned cooking methods, the slow cooking administers nutritional advantages over other modern cooking techniques.

The slow cooking in the thermos offers both the nutritional advantages and homemade “fast food.” These days the term “fast food” does not have a healthy reputation. Only lazy people do not criticize the fast food restaurants for their unhealthy foods. Millions of people eat “fast food” almost every day of the week. Why? Sure, it is cheap and convenient. Sorry to say, but if you hungry and looking for quick and healthy food, it can be a problem to obtain it right away. People with digestive disorders that search for healthy food have even more problems to obtain it. Slow cooking in the thermos is the rescue for these individuals.

Nowadays, many working adults avoid cooking because they are too tired after a long day of work, or they have no time to do so. Surprisingly enough, many adults do not even know how to cook. Slow cooking in the thermos provides them with the convenience of being able to work and eating home-cooked food without having to spend time in the cooking process. In the morning before leaving for the work, they can easily place all the food ingredients in the thermos. By the time, they come back from work in the evening a tasty, nutritious, home-cooked, warm dish will be ready for them. The slow cooking in the thermos is a convenient and healthy option.

Benefits of Slow Thermos Cooking

For individuals with a medical background

Nutritious and Delicious Meals: The ideal benefit of slow thermos cooking is that the dishes it prepares are nutritious. Enzymes are “living” protein substances, which are easily destroyed by high temperatures and lengthy cooking. When water boils at a temperature of 100 degrees C°, all proteins are denaturized in half an hour. As a result after cooking, the food becomes “dead.” This means that there are no vital living enzymes present. Slow cooking with lower temperatures may preserve destroying some proteins and save the living enzymes.

Foods cooked or processed at high temperatures create what are called advanced glycation end products (AGEs). They are formed when sugars bind to proteins, fats or other compounds in foods - an effect that becomes visible as food browns. Exposing any food to extreme high heat can result in AGE production.

AGEs increase levels of inflammation, accelerate the aging process and contribute to diabetes, asthma, arthritis, kidney and liver diseases and even cancer. AGEs accumulate in the collagen and the skin, eyes, brain, the nervous system, and in the arteries and other vital organs. The pancreas also suffers from an increased level of AGEs.[178] Eventually, AGEs cause cells to lose their elasticity, thus contributing to impaired cellular function.

Luckily, slow cooking provides three ways to reduce AGE production:

1. Cook foods at a lower temperature for a longer period of time (as in a thermos), instead of high temperatures at shorter periods of time; slow thermos cooking doesn't produce temperatures high enough to brown food
2. Keep food moist (since dry heat encourages AGE-production)
3. Limit foods that are fried, barbecued, broiled or cooked in the microwave, which are all cooking methods that encourage AGE production

Another benefit to cooking in the thermos is that there is no liquid lost because of the sealed environment. The slow cooking process allows the moisture to be locked in so it does not evaporate. Your food will be more moist and flavorful than if you were to cook it in a conventional oven or a microwave. Vitamins, minerals and other nutrients aren't lost in the cooking process because the food is cooked at a low temperature. This method absorbs all nourishing substances and the cooking liquid becomes part of the dish rather than being discarded.

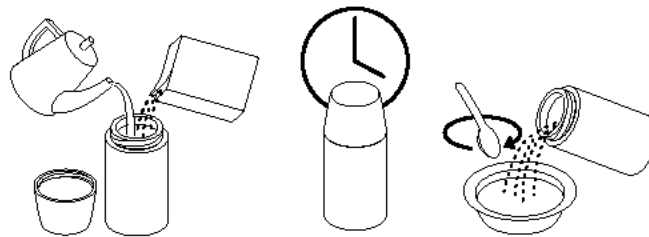
All of the vitamins, nutrients and flavors stay in the meal. The slow cooking in the stainless steel thermos is safer than cooking in the conventional pot. Stainless steel thermos sets for preparing healthier meals for you and your family. In fact, stainless steel is one of the most hygienic surfaces for the preparation of your food.

Making your own meal means that you control the sugar, bad fat, and preservatives content.

You will receive the **meal without sugar and white flour**.

Less Cost: Slow thermos cooking does not need a large investment. All that you need is good quality stainless steel thermos with a wide mouth (for convenience). It can serve you for a decade or even longer.

Convenience: You may bring hot food anywhere and keep it at room temperature for as many hours as you want. You only need to spend a few minutes in the morning combining boiling water with the meal, and it can sit in your office, classroom, campsite, caravan, vessel or home and cook itself while you are busy. You can throw your stainless steel thermos in the trunk of your car, kick it on the floor or leave it outside under the sun or rain, and your thermos will continue to do its main job – deliver you healthy, delicious hot food anywhere and anytime.



Preparing slow thermos cooking recipes improves the odds that you will eat healthier food, because your dinner will be ready when you are - you will be less tempted to opt for a greasy pizza or fat takeout food.

The food inside the thermos can never be overcooked so you will avoid burning, evaporation, over boiling or bitterness. Once your ingredients are in the thermos, there is no stirring, fussing or additional attention necessary until your dish is ready. This feature can be appreciated by the nine-to-five executive, busy stay-at-home parent, retiree, hungry athlete, following practice, traveler and college student alike - really anyone who desires to eat nutritious meals with a dash of convenience. No matter the dish - breakfast, lunch, dinner or snack—once you get friendly with your thermos, it will become your most prized appliance.

The perk of thermos cooking in the summer is that it eliminates the need to use the oven, thus, eliminating the discomfort of making an already hot home even hotter. It is easy to clean up the thermos, even in a dishwasher. The thermos is safe to leave home alone without any supervision, unlike dishes left in the oven or on the stovetop or microwave.

Time and Money Saving: Save time in the kitchen. Your thermos is doing the work while you are doing whatever else you want or need to be doing. You're not slaving over a pot for hours. All that is required is the initial 1-2 minutes preparing what is very convenient to save time in the

morning rush. If you are busy in the morning, you can prepare your meal in the evening before going to sleep. During lunchtime, besides saving your digestive system, bringing the thermos with you can save your time for a walk in the fresh air, or chat with your friends.

Getting dinner ready day after day can become a tiresome and repetitive task that make you very tired of doing after a long period of time. There may be days when you simply don't want to deal with having to get something ready for yourself or for your family because you are too tired or you do not have the time to devote to the task. In these cases, you may want to consider slow thermos cooking.

There are many benefits for slow cooking including saving time, and providing flexibility to your mealtime. You can just sit back and relax and let yourself enjoy the meal at your own pace. You will save money on electricity too because of reduced energy usage by comparison with a conventional electric oven.

b. Buckwheat and Quinoa

For individuals lacking a medical background

The authors regularly recommend for all individuals with digestive (pancreatic) problems to prepare food in a thermos. The most convenient way for this slow cooking is to use raw, organic buckwheat or quinoa. To make sure that you bought raw buckwheat or quinoa, it makes sense periodically to sprout them.

The processed cereals are not for thermos cooking because processing already killed the living enzymes. Healthy individuals, without any food sensitivities and digestive problems, may use organic oats, barley, rye flakes, or polenta in their thermos meals.

The recipe is simple. Pour hot water in the thermos, place the lid on, and shake well to heat up the interior. Place $\frac{1}{3}$ or $\frac{1}{4}$ of its volume (it depends on the consistency of the cereal) of raw, organic buckwheat (kasha) or quinoa in 1 liter (4 cup) metallic stainless steel thermos with a wide lid. Add boiling water up to the top, screw the cap on tightly, and shake the thermos.

In a typical busy morning, it will take almost 30 seconds to prepare a relatively cheap, nutritious cereal for lunch, which you can bring everywhere in stainless steel thermos. If you do not have a time preparing your breakfast, you can do it before going to sleep, as well. Some people add coconut or olive oil or butter in the thermos before or after the buckwheat or quinoa is cooked. Slow cooking buckwheat or quinoa thermos meals will be ready to eat usually after 4 hours and can be kept inside without opening for 12-15 hours.

You can add to an already prepared cereal either stevia for sweetness or Bregg's Liquid Aminos for a salty taste.

What can be added to buckwheat or quinoa after slow thermos cooking?

Oils: coconut oil, olive oil, butter, almond butter

Sweets: stevia, pure maple syrup, raw domestic honey

Vegetables: tomato, avocado, cucumber, carrot, daikon, celery, bell pepper, onion, chopped scallions, garlic, pinch of cayenne

Herbs: cilantro, basil, mint, parsley, dill

Miscellaneous Bregg's Liquid Aminos, cinnamon, cocoa powder, soy milk, coconut milk, minced fresh or dried ginger, feta or goat cheese, sunflower seeds

Buckwheat has unique health promoting properties. Buckwheat does not have any connection to the wheat. While it is usually thought of as a grain, buckwheat is actually the seed and it is used like grain in cooking. Buckwheat has been cultivated for at least 1,000 years in China, Korea, Japan and Eastern Europe. Buckwheat originated in Siberia and Manchuria and became the beloved Russian dietary staple until displaced by wheat in the 20th century. Buckwheat flour is the primary ingredient in the most beloved Japanese pasta – soba.



Buckwheat is a good choice for slow thermos cooking because it is a great tasting and healthy meal

Buckwheat surpasses rice, wheat and corn on almost every measure of healthfulness. Buckwheat has more protein than rice, wheat, millet, or corn, and is high in the essential amino acids lysine and arginine, in which major cereal crops are deficient. Its unique amino acid profile gives buckwheat the power to boost the protein value of beans and cereal grains eaten the same day.

Yet, buckwheat contains no gluten - the source of protein in true grains; therefore, buckwheat is safe for people with gluten allergies or celiac disease. This is very important for individuals with any digestive (pancreatic) disturbances because the sensitivity to gluten is quite common.

Compared with true grains, buckwheat contains high levels of zinc, copper, manganese, magnesium, potassium and phosphorus. Rice, wheat, and corn are high on the glycemic index scale, thus, provoking a quick spike in blood sugar levels, a proven promoter of systemic inflammation and can be a risk factor for diabetes. Contrary, buckwheat has a low glycemic index that makes it healthy food for individuals with Metabolic Syndrome, overweight issues and diabetes. Unlike true grains, buckwheat's low fat content is skewed toward healthy mono unsaturated fatty acids.

A considerable portion of buckwheat dietary fiber is the soluble type that makes it so heart-healthy, and yields digestion byproducts that reduce blood cholesterol levels and the risk of cancer.

Buckwheat contains bioflavonoids, which are beneficial for heart and circulatory health. In traditional medicine, buckwheat is believed to build blood cells, heal diabetes and varicose veins, relieve chronic diarrhea and neutralize toxic, acidic wastes. In Chinese medicine, it is considered to strengthen the large intestine, stomach, and spleen. In some European countries, buckwheat is considered as a folk remedy for abdominal pain due to the difficulty with digestion. Buckwheat is light in texture and cooks quickly.

Quinoa is an excellent nutritional source of health



Quinoa (pronounced keen' wa) is both nutritious and delicious. Best of all, it is easy to prepare in the thermos.

Quinoa was an important food in the Andean region of South America 6,000 years ago. The Incas revered quinoa. In those times quinoa helped sustain the Inca armies as they marched throughout the empire on new conquests. The Incas considered it sacred food and referred to it as the *mother seed* and *gold of the Incas*.

Quinoa is a whole grainlike food - the seed of a plant related to spinach. According to The National Academy of Sciences, quinoa is “one of the best sources of protein in the vegetable kingdom.” The World Health Organization has rated the quality of protein in quinoa to be equivalent or superior to that found in milk products.

Quinoa is not a true cereal grain but is used as one. Because quinoa is a noncereal grain, it is favored by people with food sensitivities, and allergies to gluten in the common grains.

Quinoa has the highest protein of any grain (around 16 percent), and unlike other grains, this is a complete protein, containing all of the amino acids necessary for the construction of proteins used by humans. A 3.5-ounce serving provides 14 grams of protein. Nutritionally speaking, it can often take the place of meat in the diet. Unlike other grains, quinoa has a sufficient supply of lysine, an amino acid that is scarce in the plants. It is also high in methionine and cystine, making it complementary to beans, which lack these amino acids.

Quinoa is an excellent source of dietary fibers, containing both soluble and nonsoluble fiber. It is high in a variety of vitamins and minerals, especially manganese, magnesium, iron, copper, and phosphorus. Quinoa is ideal for people that are worried about calcium intake. Quinoa contains more calcium than milk. Quinoa is a rich and balanced source of many other vital nutrients, including lignans, good fat, B vitamins, folic acid and vitamin E. This is an essential food if you are vegetarian or want to reduce carbohydrate intake.

It is gluten-free and easy to digest. Quinoa is thought to be drying and; therefore, good for people with Candida type yeast infections, edema and overweight conditions. Quinoa is very low on the glycemic index, meaning that it will not cause blood sugar levels to spike, and it provides a sustained feeling of food satisfaction. It is nutritional food and its low score on the glycemic index makes it ideal for people with overweight issues, Metabolic Syndrome or diabetes.

The basic recipe for slow thermos cooking for quinoa is the same as buckwheat. In 1 liter (4 cup) metallic stainless steel thermos with a wide lid, you add raw, organic buckwheat (kasha) or quinoa to between $\frac{1}{3}$ and $\frac{1}{4}$ of its volume, depending on the consistency. Add boiling water up to the top, screw the cap on tightly, and shake the thermos. Your meal will usually be ready after 4 hours in the sealed thermos. Cooked quinoa looks translucent, and the germ of the seed makes a white ring around the outside of the grain. It is excellent in soups, hot or cold dishes, as a vegetable side dish, or with salads and vegetables.

You can add to the already prepared cereal either stevia for sweetness or Liquid Aminos for a salty taste. To avoid a bitter taste, place the quinoa grain in a fine strainer and rinse thoroughly with warm water. However, quinoa usually placed on the market, is already prewashed. Look at the label. During cooking, a fine, white spiral should appear around the grain.

Raw quinoa can be sprouted to activate its natural enzymes and boost its vitamin content. Sprouted quinoa offers the ultimate in nutrition. It only takes about 4 hours to sprout quinoa. Just place the grains in a glass of clean water. After 4 hours, the enzymes will be released. The sprouting process softens the grains, making them suitable to be added directly to salads and other foods without having to be cooked. Sprouted quinoa is best eaten in 2 to 3 days.

Quinoa's fresh, light taste and high protein content make it an excellent foundation for many salad recipes. Set aside to cool. Combine lime juice, cumin, coriander, cilantro, scallions, beans, tomatoes, bell peppers, and chilies. Drizzle with olive oil. Add cooled quinoa, Liquid Aminos and pepper. Quinoa is considered as an ultimate food and can be substituted for almost any other grain. Slow cooking of quinoa in the thermos provides light, healthy and easily digestible dishes that are easy to prepare, easy on the budget, and full of good taste are in demand.

Quinoa is a tremendous dietary choice for individuals with any pancreatic disorder.

Interesting facts at a glance:

Slow thermos cooking has some nutritional advantages over more modern cooking techniques

Slow thermos cooking helps prepare nutritious and delicious meals on demand

Water, vitamins, minerals, and other nutrients aren't lost in the slow cooking process in a stainless steel thermos

Slow thermos cooking is inexpensive and convenient. With a thermos, you can bring hot food anywhere and keep it at a safe temperature all day. Prep time is 1 minute; cooking time is 4 hours. Slow thermos cooking saves time in the kitchen and it may also lower your electric bill

The food inside the thermos can never be overcooked

We recommend buckwheat and quinoa for slow thermos cooking. Both are very nutritious, gluten-free grain alternatives and high sources of protein with low glycemic indexes

c. Fermented Food

For individuals lacking a medical background

Almost all traditional societies include enzyme-rich living foods in their cuisine. These eating habits also traditionally include a certain amount of cultured or fermented foods, which have high enzyme content. The fermenting and culturing process actually enhances the amount of the natural digestive enzymes in the fermented foods including milk, cream, butter and cheese. The culturing of fruits, vegetables, beans, dairy products, meat and fish, is found almost universally among pre-industrialized societies. Drying and fermentation are the oldest, natural and most useful methods of preserving foods during famine.

When we speak of living foods, this is another way of saying that they have living enzymes. These enzymes help us to digest these foods after eating. Living enzymes also promote digestion of other foods. All foods are surrounded by microorganisms, which have a useful environment to thrive in. All processes of rotting, spoiling, fermentation and silage mostly require multiplying of various microorganisms. Some of these microorganisms such as *Lactobacillus* not only help with fermentation but also reside in the human GI tract.

Years ago, people ate fermented foods out of necessity. They did not have food supermarkets and refrigerators with easy access to food. They did not have the same sophisticated systems of transportation and food handling, which modern societies have today. They did not have a great number of chemical preservatives that we have in our foods keep them eatable by years; therefore, instead of canning, vaporizing, preserving, radiating or freezing foods to keep them fresh, they fermented them. The fermented foods they ate contained lactic-acid bacteria that prevented the food from spoiling.

Originally created out of necessity, these foods wound up offering the added advantage of beneficial bacteria, enzymes, and better nutrition together. Traditionally fermented foods are healing foods.

The two main benefits of traditionally fermented foods are enzymes and probiotics - beneficial bacteria

What is also essential for pancreatic health is that fermented food is abundant in natural, digestive enzymes as proteases to digest proteins, and lipases to digest fat. If you ferment foods yourself or purchase them already made, the key is eating a small portion on a very regular basis with some other foods. It may help your own digestion. Once or twice daily with meals is best.

Microorganisms in the fermented foods predigest our food by using their potent digestive enzymes hence, making it easily assimilated by the human body. It decreases the workload of an enlarged over worked pancreas trying desperately to produce the digestive enzymes not supplied by the usual “dead” enzyme-less food. The poor pancreas becomes enlarged trying to handle all the extra work it has to perform. It is a huge strain and unhealthy for the pancreas and whole digestive system. When you eat raw cultured fermented foods loaded with enzymes you give your body an opportunity to use those enzymes to rejuvenate the body instead of wasting a large portion of your own pancreatic enzymes digesting food.

The human body may recycle enzymes from fermented foods by absorbing them through the intestine and colon and transporting them via the blood back to the pancreas to be used again. The body is thus designed to conserve its precious enzyme stores.

Eating enzyme and probiotic-rich fermented foods decreases the overwork of the pancreas by preserving the body’s own digestive enzymes and reducing the risk of chronic pancreatic disorders

Many plant foods contain indigestible starches that cannot be broken down by pancreatic digestive enzymes, so they cannot be absorbed in the upper intestinal tract. As a result, they pass into the lower intestinal tract where friendly bacteria use them as food and ferment these indigestible starches to form other chemicals. Some of these substances protect intestinal lining from irritation and cancer. They are absorbed into the bloodstream and can lower cholesterol and prevent heart attacks.

The first scientific research about benefits of bowel flora started 100 years ago when Russian microbiologist and Nobel Prize winner Ilya Mechnikov visited Bulgaria. He discovered that Bulgaria had the greatest number of people who had lived past 100 years of age, and most of these people ate fermented milk - yogurt. The Bulgarian yogurt contained the microorganism that became known as *Lactobacillus Bulgaricus*.

Professor Mechnikov developed a theory that aging is caused by toxic bacteria in the gut. He believed “beneficial bacteria” such as lactobacillus can decrease the population of “harmful bacteria” and reduce inner toxicity, thus, prolonging human life. Scientists laughed at Mechnikov at that time, but research in the last twenty years may turn him from a quack into a prophet with the honored name – the Father of Probiotics.

People can receive probiotics either from fermented food or from supplements. Probiotics are sometimes referred to as “friendly bacteria.” They are beneficial microorganisms that naturally reside in the human digestive system. You already have billions of bacteria living in your gut. A few microorganisms are harmful (pathogenic), and they can cause severe diseases, but many are beneficial.

Some of the gut’s microorganisms are related to the opportunistic infections (they grow when they have the opportunity to grow). Mostly, these opportunistic infections are Candida-yeast and other parasites. The friendly flora controls the growth of the opportunistic infections. Keeping a balance between the good and the opportunistic bacteria is critical to maintaining proper health.

Fermented foods also inhibit the growth of unfavorable bacteria while helping other beneficial bacteria proliferate. The flora in living cultured foods form a “living shield” that covers the small intestine’s inner lining and resists pathogenic organisms like *E.coli*, *salmonella* and an unhealthy overgrowth of yeast. There are solid evidence-based facts and clinical observations that eating food with lactobacilli or taking probiotic supplements decreases the possibility of food poisoning, traveler’s diarrhea and stomach flu. Probiotics provide many other proven benefits including vitamin production and keeping the immune system healthy.

A slightly alkaline balance is a sign of proper functioning of the entire human organism. From fermented foods, Lactobacillus produces organic acids such as lactic and acetic acids. These weak organic acids promote the body alkalinity despite the popular concept that all acids in the food cause body acidity. In fact, one of the dietary habits consistent with people living into their 100s, was the regular intake of small amounts of lactic-acid fermented foods.

The problem is that real traditional fermented foods have disappeared from our diets. That’s because most commercial fermented foods such as sauerkraut and pickles are made with vinegar, and then pasteurized with adding preservatives or food coloring agents that kill all the lactic-acid – producing friendly bacteria. Without living enzymes and microorganisms, these commercial products do not provide anywhere near the same health benefits as the old fermentation methods and make them useless when it comes to improving health.

Fermented Foods By Type from [http://en.wikipedia.org/wiki/Fermentation_\(food\)](http://en.wikipedia.org/wiki/Fermentation_(food))

Bean-based: miso, natto, soy sauce, tempeh

Grain-based: beer, bread, sake, sourdough, malt whisky, vodka, kvass, rejuvelac

Vegetable-based: kimchi, mixed pickle, sauerkraut, Indian pickle

Fruit-based: wine, vinegar, cider, brandy, apple cider vinegar

Honey-based: mead, metheglin

Dairy-based: cheeses, kefir, cultured milk products such as quark, filmjolk, smetana, skyr, yogurt

Other milk-based: kumis (mare milk), shubat (camel milk), goat cheese, goat yogurt

Fish-based: bagoong, fish sauce, garum, shrimp paste, jeotgal

Meat-based: salami, pepperoni, chorizo

Miscellaneous: Kombucha, seed cheese

You can make a homemade version out of any kinds of fermented foods.

Interesting facts at a glance:

Almost all world cultures traditionally include a certain amount of cultured or fermented foods in their diet

Fermentation is one of the oldest, natural and most useful methods of preserving foods

Most fermented foods contain lactic-acid bacteria that prevent the food from spoiling

A small amount of the lactic acid promotes a normal, slightly alkaline balance in the body

The two main benefits of traditionally fermented foods are enzymes and probiotics - beneficial bacteria

The friendly, beneficial flora (probiotics) controls the growth of the opportunistic infections, enhance immunity, manufacture vitamins, and improve bowel elimination

Microorganisms in the fermented food predigest food by using their potent digestive enzymes, thus making food easily digestible

Eating raw cultured fermented foods loaded with natural enzymes gives the body an opportunity to use those enzymes for digestion and rejuvenation instead of wasting a large portion of its own pancreatic enzymes

Eating enzyme and probiotic-rich fermented foods decreases the overwork of the pancreas, preserves the body's own digestive enzymes and reduces the risk of chronic pancreatic disorders

Anyone can make a homemade version out of any kinds of fermented foods

Supplying the Pancreas with the Proper Amount of Minerals, Vitamins and Essential Amino and Fatty Acids

Chapter 24-Supplementation with Minerals and Trace Elements

For individuals lacking a medical background

For proper functioning, the pancreas needs the proper amount of essential minerals and trace elements.

Some of these minerals are components of pancreatic juice. They make an electrolyte solution of sodium, potassium, magnesium and calcium that are milieu for the proper action of pancreatic digestive enzymes.

Pancreatic juice and blood serum have identical concentrations of sodium and potassium. The injection of these ions into the bloodstream increases their concentrations in both fluids to the same degree. A substantial amount of calcium and magnesium was found in the pancreatic juice, as well.

Minerals and trace elements are cofactors of enzymes. Most of the protein-based enzymes require small molecules called cofactors to become fully functional. The relationship between enzymes and cofactors is shown by the equation

$$\text{Non-active enzyme} + \text{cofactor (mostly minerals)} = \text{active enzyme}$$

When we are talking about abundant amount of minerals in our food, we presume there are plentiful cofactors for the pancreatic enzymes, as well.

The human body must maintain its proper chemical balance. This balance depends on the levels of minerals in the body and their ratio to one another. Scientists have found that over 200 degenerative diseases are linked to mineral deficiencies including cancer, diabetes, arthritis, heart disease, and gallbladder and kidney stones.

“You can trace every sickness, every disease, and every ailment to a mineral deficiency.”

Dr. Linus Pauling, winner of two Nobel Prizes

It is surprising how little, people know about the importance of minerals in maintaining excellent health. Many cultures, including the Abkhazians of Georgia, the Hunzas of Pakistan, the Vilcambambas of Ecuador, the Tibetans, and the Titicacas of Peru, live high in the mountains and their water has massive amounts of mineral nutrients. These people never get sick. They have almost no cancer, heart disease, diabetes, Alzheimer's, or arthritis. They live decades longer than we do in North America, and their aging process is dramatically slower.

Minerals and microelements are instrumental in all life-sustaining activities. Like vitamins, the body cannot synthesize minerals, so they must be obtained regularly through food or drink. Today's diet of refined acidic foods inhibits mineral absorption. Many minerals and trace minerals are no longer sufficiently present in our fruits and vegetables. Researchers have discovered trace mineral deficiencies in the soil of almost every state in the U.S., such as suboptimal zinc, reduced magnesium, and inadequate selenium, cobalt, and copper. Virtually everyone whose diet consists of commercial food, is deficient in at least one of the trace minerals, and usually several of them.

Minerals and essential trace minerals are the essence of life and are even more valuable than vitamins. They modulate cellular function by the stimulating and controlling the rate of cellular reactions. The minerals that are heavily involved in enzymatic functions include magnesium, potassium, zinc, selenium, copper, manganese, molybdenum, etc.

Most enzymatic functions depend on tiny amounts of essential trace minerals. The major minerals are involved in all life-sustaining activities. For example, magnesium is crucial in muscle contraction, iodine in thyroid function, iron in blood oxygen exchange, chromium in blood sugar control, zinc in prostate health and so on.

Without a sufficient amount of minerals, we are vulnerable to various disorders, from depression to cancer. Even with an ideal diet, taking the mineral supplements and alkalizers would still be recommended.

The major minerals are useful in all life-sustaining activities within our bodies. These minerals are needed for the proper composition of body fluids, the formation of blood and bones, the maintenance of healthy nerve function and the regulation of muscle tone, including the cardiovascular system and all enzymatic activity in the living human body. Throughout the day, our bodies continuously depend on minerals, to generate billions of tiny electrical impulses throughout the nervous system. Without minerals, our body would not function. Hearts would stop beating, muscles would freeze, our brains would black out, and our cells will cease receiving energy for functioning if these minerals were not available in just the right amount and kind. Most enzymatic functions rely on small amounts of bio-available minerals and trace elements.

Deficiencies or improper combinations of minerals and trace elements can cause many chronic disorders. For example, calcium deficiency can cause osteoporosis; magnesium deficiency can

cause hypertension, heart palpitations and constipation; potassium deficiency can cause arrhythmia and heart failure; iron deficiency can cause anemia. The thyroid gland cannot function without iodine and the prostate gland cannot function without zinc. The body absorbs the elements and nutrients it needs from foods, healing mineral water, and mineral supplements and eliminates those that are in excess, to normalize whole body functioning.

Minerals are classified into two categories:

1. Minerals
2. Trace elements (microelements)

If less than 100 mg/per day of a mineral is required, then it is considered a trace element or micro element. Trace elements are found in minute amounts and along with major minerals, play a vital role in pancreatic health.

Minerals are magicians with the power to cause nutrient metamorphosis, with each mineral having a unique and specific effect upon the body.

The minerals are water-soluble and provide ionic mineral nutrition to the cells, allowing proper repair, function, and growth. Since many minerals compete with one another for absorption, an overabundance of one mineral can produce a deficiency of another.

To act as vital nutrients, minerals must be consumed in optimal amounts. Why is it so important? Minerals are absorbed through the roots of plants from the soil in which they are grown. Because of industrial agriculture and widespread deforestation, the soil is depleted or open to erosion and no longer contains the full complement of minerals; therefore, fruits and vegetables do not have the healthful, life-giving vitamins and minerals that we think we are receiving when we eat them. Eating organic food eases this problem but it does not entirely solve mineral deficiencies in some cases. Cooking food usually diminishes minerals and vitamins. Mineral supplements can be helpful and in many cases are vital.

Essential Minerals and Trace Minerals:

Essential Major Minerals: Calcium, Chloride, Magnesium, Phosphorous, Potassium, Sodium, Sulfur

Essential Trace Minerals: Chromium, Cobalt, Copper, Fluoride, Iodine, Manganese, Nickel, Selenium, Silicon, Tin, Vanadium, Zinc

Other Important Minerals: Arsenic, Boron, Cadmium, Lithium

a. Who Is At Risk For Mineral Deficiencies?

In general, levels of minerals and microelements are lowest among the elderly, people with chronic illnesses and use of medications, vegetarians, dieters, athletes, alcoholics and individuals with gastrointestinal, liver, kidney, and gallbladder disorders.

The elderly have a greater demand for minerals and are at risk for a number of mineral deficiencies because of the low production of stomach acid and digestive, pancreatic enzymes that interfere with nutrient absorption. Some medications negatively affect the absorption of minerals or promote losing them from the kidneys and GI tract.

People with chronic illnesses such as gastrointestinal, pancreas, liver, kidney, and gallbladder disorders have a deficiency of minerals and microelements because of poor digestion and assimilation or because of extensive elimination. Many individuals with diabetes and extended urination lose large amounts of minerals and trace elements, as do those with chronic diarrhea, vomiting, bleeding, and excessive perspiration.

Vegetarian diets have different restrictions; therefore, some vegetarians have problems obtaining adequate amounts of iron, calcium, zinc, iodine, cobalt, and other trace elements.

Dieting is one of the most common pastimes in America. Approximately 25% of men and 50% of women are attempting to lose weight. As a rule of thumb, all restrictive diets lead to difficulties to obtain adequate nutrition. Unfortunately, many of the latest-and-greatest diets are not healthy and in many cases are dangerous for the pancreas. “Crash diets” - prolonged fasting, harsh cleansing, and rapid weight loss can cause gallstones, liver failure, spasms of the Sphincter of Oddi and, in the worst case scenario, – pancreatitis. In this case, there is simply not enough food to supply the minerals and trace elements, which necessary to satisfy biological needs.

Athletes waste water and minerals, such as sodium, chloride, potassium, and magnesium and trace minerals, such as zinc through sweat and by drinking excessive fluids.

Alcoholics usually are deficient in magnesium, potassium, iron, copper, nickel and zinc, which can be major factors for developing pancreatic problems.

Weight loss surgery has long-term complications for continuing deficiencies of some minerals such as cobalt, magnesium, calcium, iron, and zinc.

Medication may suppress digestion or promote elimination of some minerals and trace elements.

Common mineral deficiencies may be one of the important factors for diminishing pancreatic function, which cause vicious circles that include:

Deficiency of the minerals and trace elements in the blood ==> Deficiency of the minerals and trace elements in the pancreas ==> Diminishing of the pancreatic function ==> Low

digestion and assimilation of the vital minerals ==> Deficiency of the minerals and trace elements in the blood ==>

Development of many disorders and diseases

Proper balance of minerals and trace elements in the body is essential for normal pancreatic function; on the other hand, low amounts and low quality of the pancreatic enzymes reduce digestion and assimilation of these vital nutrients making vicious circles. In case of some mineral surplus, the healthy body has a well-working mechanism to eliminate unnecessary materials.

However, if the body is deficient in minerals, there are only two ways to correct this problem: either supplementation with minerals or improving the body's ability to digest them. It is recommended to utilize both ways.

Drinking Karlovy Vary Healing Mineral Water covers both options. The curative power of minerals will be discussed further in the *European-Style Healing for Digestive (Pancreatic) Disorders – Karlovy Vary Healing Mineral Water* chapter 33.

Interesting facts at a glance:

The human body must maintain proper levels of minerals in the body and their ratio to one another. Over 200 degenerative diseases are linked to mineral deficiencies, including cancer, diabetes, arthritis, hypothyroidism, heart disease, gallbladder and kidney stones

The human organism can obtain minerals and trace elements only from food, water, mineral water or mineral supplements

More than 100 mg/per day of a mineral is required. If less than 100 mg /per day of a mineral is required, it is considered a trace element or microelement

Modern populations suffer from deficiencies of many vital minerals and trace elements such as magnesium, potassium, calcium, iron, zinc, cobalt, selenium, iodine, etc

In general, levels of minerals and microelements are lowest among the elderly, people with chronic illness and use of medication, individuals with gastrointestinal, liver, kidney, and gallbladder disorders, and athletes, vegetarians, dieters and alcoholics

For proper functioning, the pancreas needs the right amount of essential minerals and trace elements

Pancreatic juice contains minerals and trace elements

Minerals and trace elements are cofactors of enzymes, thus, making them active

Insufficient amounts of minerals and trace elements decrease exocrine and endocrine functions of the pancreas leading to chronic pancreatitis and diabetes

Even with an ideal diet, taking daily mineral supplements and alkalizers would still be recommended

Chapter 25-Supplementation with Vitamins

For all readers

The non-protein component of enzymes is the cofactor. If the cofactor is organic, then it is called a coenzyme. Coenzymes are relatively small molecules compared to the protein part of the enzyme. But without the coenzyme, the enzyme will not function. All of the ingredients exist separately, but when the large protein enzyme molecules attach to the cofactors or the coenzymes, an active state begins. Then they attach to the substrate to promote a chemical reaction.

Many of the coenzymes are derived from vitamins. Again, similar to minerals, when we talk about a good amount of vitamins, we presume there are plentiful coenzymes for the producing the pancreatic and metabolic enzymes as well.

Vitamins are essential substances that are needed in small amounts in our food for the normal function, growth, and maintenance of all of the body's organs, including the pancreas.

Vitamins are either fat-soluble or water-soluble. One of the biggest differences between fat-soluble vitamins and water-soluble vitamins is that the latter are not stored in the body. Because the body is not able to store water-soluble vitamins, frequent consumption of them becomes necessary. As water-soluble vitamins enter the body, they are put to work immediately and any excess is eliminated from the body through the urine. The vitamins that make up the water-soluble category include mostly the B vitamins and vitamin C.

Many medical articles and books confirm the value of vitamins for proper gastro-intestinal function, particularly for the pancreas. It is known that low levels of vitamins B-1, B-2, B-3, B-12 and folic acid decreases exocrine pancreatic function and digestive pancreatic enzyme activity.

Similar to minerals, a deficiency of vitamins leads to the decreasing of pancreatic function

Fat Soluble Vitamins

On the other hand, in pancreatic disorders with decreased production and elimination of digestive enzymes, especially lipase, severe deficiencies of fat-soluble vitamins A, D, E, and K may lead to anemia, osteoporosis, visual disturbances, mental depression and bleeding.

The fat-soluble vitamins can be remembered with the mnemonic (memory aid) "ADEK", for the vitamins A, D, E and K. Because of 90% of fat digestion depends upon pancreatic lipase and

functional activity of bile, all problems with exocrine pancreatic deficiency presumes some deficiencies of fat-soluble vitamins. Obviously, the epidemic proportion in digestive (pancreatic) disorders in the world population now combines with the same relative amount of deficiencies of fat-soluble vitamins A, D, E, and K.

There are numerous evidences to connect the “diseases of civilization” such as cardiovascular disease, osteoporosis, gum disease, digestive (pancreatic) diseases, depression, allergies, infertility, cancer, diabetes, and even the flu with deficiencies of some fat-soluble vitamins.

For example, the growing-list of the illnesses that vitamin D may help prevent and treat gave scientists the idea, that many of those “diseases of civilization” are the manifestation of adult rickets, a disease caused by vitamin D deficiency.

Two main mechanisms could cause deficiencies of fat-soluble vitamins in humans: reduced vitamin intake and problems with their digestion and assimilation.

First, the mistaken slogan “*No fat, no cholesterol*” scares people to eat natural fat products and added products to the plethora of “low-fat” and “fat-free” foods on the supermarket shelves.

Fat-soluble vitamins are found in meats, liver, raw milk, butter, raw egg yolks, unprocessed vegetable seed oils, coconut oil, avocados, and fatty fish – the products, which by continuing incorrect propaganda, are rarely found on the dinner table anymore.

Next, the incorrect calorie counting theory without the specificity of the food products mechanically compares the human body with a machine, which manufactured energy from fats, proteins and carbohydrates by their calories. Not all calories are equal. There is no question that 100 calories from refined sugar and, for example, raw avocados have various metabolisms, nutrition values and act in the body completely differently.

The unprocessed fat products with the proper amount of natural food lipase are not enemies. They are the source of many vital nutrients, including fat-soluble vitamins

Proper digestion of fat-soluble vitamins requires proper exocrine pancreatic function (pancreatic lipase) and functional activity of bile. In all exocrine pancreatic function disorder stages, *acidic pancreas and bile, pancreatic deficiency* and, especially, in the *pancreatic failure*, there are different degrees of deficiencies of vitamins A, D, E and K.

Metabolic acidosis (body acidity), dysbiosis (Candida-yeast overgrowth and SIBO), food sensitivity to gluten (hidden and obvious celiac disease), functional dyspepsia and IBS and hereditary problems (cystic fibrosis, lipase deficiency) are some of the causes or consequences of low pancreatic function and poor absorption of these vitamins as well

Chapter 26-Supplementation with Essential Amino Acids and Essential Fatty Acids

Because the pancreas synthesizes more protein per gram than other human tissues, it needs an abundant supply of amino acids, especially essential amino acids. Experiments have shown that, during the digestive process, the level of the amino acids in the blood decreases and increases in the pancreas. Amino acids obviously need for producing proteins such as digestive enzymes. In some tropical countries, chronic pancreatitis is seen in children and is associated with malnutrition and deficiencies of essential amino acids. Low protein diets are not healthy for the pancreas.

The term Essential Fatty Acids (EFA's) shows how vital and necessary these substances are for the human organism.

Humans must ingest EFA's from food because the body cannot synthesize them. Problems that cause the diminishing of the pancreatic function and production and bile elimination can negatively influence the digestion of the EFA's. Essential fatty acids play an important role in the life, function and death of cells. The deficiency of these vital nutrients plays a role in numerous "diseases of civilization" including high cholesterol, high blood pressure, heart disease, diabetes, rheumatoid arthritis, osteoporosis, depression, bipolar disorders, attention deficit/hyperactivity disorder (ADHD), skin disorders, asthma and cancers. The deficiency of essential fatty acids is considered to be a causing factor of chronic pancreatitis, as well.

Interesting facts at a glance:

To function properly, the pancreas needs the proper amount of essential minerals and trace elements. Minerals are necessary for the pancreas to produce digestive enzymes and alkaline pancreatic juice

The non-protein component of enzymes is the cofactor

Minerals and trace elements are "cofactors" of enzymes that make them active

If the cofactor is organic, then it is called a coenzyme

Many of the coenzymes are derived from vitamins

Scientists have found that over 200 degenerative diseases are linked to mineral deficiencies, including cancer, diabetes, arthritis, heart disease and gallbladder and kidney stones

The body cannot synthesize minerals and vitamins so they must be obtained regularly through food or drink

Industrial agriculture, processing and cooking generally diminish food's mineral and vitamin content

Vitamins are essential substances that are needed in small amounts in our food for the normal function, growth, and maintenance of the body's organs, including the pancreas.

Vitamins are either fat-soluble or water-soluble

Because the body is not able to store water-soluble vitamins, such as C, B vitamins and folic acid, frequent consumption of them becomes necessary

The proper amount and quality of the bile and pancreatic lipase is required for digestion of the fat- soluble vitamins A, D, E, and K

In pancreatic disorders with low production and elimination of digestive enzymes, especially lipase, deficiencies of fat- soluble vitamins A, D, E and K, may lead to anemia, osteoporosis, visual disturbances, mental depression and bleeding

The lack of fatty foods due to “low-fat, low-cholesterol” diets also leads to deficiencies of fat-soluble vitamins

The unprocessed fat products with proper amounts of natural food lipase are very important sources of many vital nutrients, including fat-soluble vitamins

The pancreas needs an abundant amount of amino acids because it produces a lot of proteins as pancreatic digestive enzymes

A low protein diet is not healthy for the pancreas. Protein deficiency may cause pancreatitis

Deficiencies of essential fatty acids are considered to be causing factors of chronic pancreatitis as well

Low amounts and quality of pancreatic enzymes reduce the digestion and assimilation of these vital nutrients

Chapter 27-Alkalizing Diet for Pancreatic Health: In Balance with Nature

For individuals lacking a medical background

The acid – alkaline balance has been brought to the attention of many health practitioners as a vital factor of health and well-being the past few decades.

Without the proper acid – alkaline balance, we cannot survive. Even small shifts to acidity will cause many health problems

The acidic condition destroys our cells, organs, systems and finally the whole body.

Whole body acidity literally kills the pancreas. The pancreas produces pancreatic juice, which is a strong alkaline solution. Alkalinity of pancreatic juice depends mostly on bicarbonate content.

Pancreas takes bicarbonate from the blood so more bicarbonate in the blood means more alkalinity of pancreatic juice. From the other hand, more alkalinity of pancreatic juice means more activity of pancreatic digestive enzymes – better digestive function and healthy body.

Low bicarbonate quantity in the pancreas results in, everything going wrong: low alkalinity of pancreatic juice, low activity of pancreatic enzymes, indigestion, deficiencies of vital nutrients (minerals, vitamins, EFA, amino acids, etc), dysbiosis, low energy, chronic diseases, premature aging, etc.

End products of metabolism of all eaten food products are acids

Our food consists of proteins, fats, and carbohydrates.

The endproducts of protein metabolism are amino **acids**. Proteins are more prone to make the body acidic when they are not properly digested due to low pancreatic function. In the GI tract, improperly digested proteins are converted into very toxic acidic substances such as hydrogen sulfide, indol, nitrosamine, etc.

The endproducts of fat metabolism are fatty **acids**. Fats can also be converted into very acidic substances such as ketones. In the worse scenarios such as fasting and diabetes (low pancreatic function), ketones may cause serious acidic conditions such as acidic coma and death.

The endproducts of carbohydrate metabolism are either carbonic **acid** or lactic **acid**.

Low pancreatic functions such as diabetes or pancreatitis destroy proper metabolism of proteins, fats and carbohydrates leading to severe acidic condition in the body's tissues.

Low pancreatic function leads to whole body acidity that kills the pancreas. This forms a serious “vicious circle” for our health

Additionally, low pancreatic function is combined typically with dysbiosis; the situation when the friendly intestinal flora vanishes and bad bacteria or yeast take over the gastrointestinal tract. These conditions are known as Candida-yeast overgrowth or SIBO (Small Intestine Bacterial Overgrowth) and lead to whole body acidity because of severe intestinal fermentation and rotting.

Many doctors, scientists, and health care practitioners agree that the whole body acidity is epidemic in the modern world, and this acidity is connected with lifestyles, mostly with modern food. Present foods are acidic via biochemistry because those foods are deficient in alkaline substances such as minerals and bicarbonates, which usually neutralize the acidity. Mother Nature wisely amalgamated the proteins, fats, carbohydrates and large amounts of minerals and bicarbonates in real, whole food, to keep a slightly alkaline environment inside the body.

Acidity means that all our cells are swimming in their acidic waste. Hence, these cells sooner or later will deteriorate and die.

For most people, development of the acidic state is a chronic, long-term process because our body has the bodyguard capable of neutralizing acids – the alkaline reserve in the blood. The bigger our alkaline reserve, the easier it is for our body to neutralize toxic, acidic input. The smaller our alkaline reserve, the more prone we are to develop the acidic condition that doctors refer to as chronic metabolic acidosis. Fortunately, we have minerals and bicarbonate to the rescue.

We have only one way to survive; supplying our body with minerals and bicarbonate to keep our alkaline reserve as plentiful as our body needs.

From where do minerals and bicarbonates come? As we have discussed, they come mostly from food and water.

There are thousands of websites, books and articles offering alkaline diets, alkaline food plans and charts of acid or alkaline foods. The food products are divided into two categories: acid or alkaline. Some authors use acid or alkaline chemical properties of the food's ash. Acidic ash signifies acid-formed food products. Contrary to this, alkaline ash obviously indicates alkaline-formed food products. The human body is not a chemical test tube. Nevertheless, everything is neither so simple nor clear in the acid – alkaline balance.

We offer our points of view about an acid – alkaline diet and the benefit of the alkaline diet for pancreatic health.

First, the alkaline diet for pancreatic health means that food has to be full of natural and living digestive enzymes to decrease the overwork of the pancreas and, what's more, diminish the ability of the pancreas to lose bicarbonate and minerals with pancreatic juice.

On the other hand, living digestive enzymes from food promote proper digestion thus the correct supply of bicarbonate, minerals and trace elements. This is essential because only these substances are the natural materials for the alkaline reserve.

Regarding the pancreatic health, it is very important to have the abundant quantity of natural digestive enzymes in our foods, as well as the right amounts of minerals such as sodium, potassium, magnesium, calcium and bicarbonate

Improperly digested foods cause acidic overload, exhaust the alkaline reserve and decrease the activity of digestive and metabolic enzymes, thus, leading to diseases and aging.

Foods are healthy and alkaline when they contain living digestive enzymes

Authors are not prophets of strictly raw diets. To be realistic, people need to consume 50% or more “living” food with natural digestive enzymes for pancreatic health. Sick individuals need to consume more foods with natural digestive enzymes.

The body’s alkaline reserve also plays a significant role in the necessity of the alkaline diet. Healthier individuals with normal alkaline reserves in the blood are more tolerant to negative influences of acidic foods.

In addition, alkalinity is a very important condition for the body’s digestive system, especially pancreatic health. More problems with digestive (pancreatic) health require more alkaline foods.

Food products cannot be simply acidic or alkaline. It is essential the metabolic actions of the product in the body rather than just their taste, its pH, physical texture, or pH of the ash. Some products are acidic by taste but alkaline by metabolic activity. For example, lemons, apple cider vinegar and sauerkraut taste sour, but in small amounts, they promote alkalinity in the body.

In general, it is not a good idea only to focus on acid or alkaline food qualities. Many acid producing foods have essential components for our health, particularly pancreatic health. For example, meat has vitamin B-12 and L-carnitine and fatty foods have essential fatty acids and fat-soluble vitamins. All these substances are vital for pancreatic function. In nature, life foods have both acidic and alkaline components to keep a slightly alkaline environment in our body. The modern foods shift this balance to acidity. This is why the same product can be acidic or alkaline by metabolic action in the body, depending on its quality and body function.

How the Same Products Can Promote Either Acidic or Alkaline States by Metabolic Actions Inside the Body:

-----Wheat

Alkaline: wheat sprouts, wheat grass juice

Neutral: whole grain bread

Acidic: white flour bread, pasta, sweet bakery

-----Grains

Alkaline: sprouted grains

Neutral: slow thermos cooking (buckwheat, quinoa)

Acidic: processed, cooked, fried, baked, sugar sweetened

-----Vegetables

Alkaline: fresh, vegetable blends, fresh squeezed juices, raw, cold vegetable soup

Neutral: frozen, steamed, gently cooked, vegetable soups

Acidic: processed, canned, cooked, fried, baked, processed vegetable juices

-----Fruits

Alkaline: fresh, nonsweet fruits, fresh prepared juices, raw fruit blends

Neutral: frozen, fresh squeezed but pasteurized juices, non-sweetened dry fruits

Acidic: processed, cooked, canned, baked, sugar sweetened, processed juices

-----Nuts and seeds

Alkaline: sprouted or raw, water soaked

Neutral: raw

Acidic: processed, cooked, fried, sugar sweetened

-----Sweets

Alkaline: stevia

Neutral: real maple syrup, molasses

Acidic: sugars, high fructose corn syrup, artificial sweeteners

-----Bee products

Alkaline: raw, unprocessed honey, honeycomb, bee pollen, royal jelly

Acidic: honey processed with heat

-----Eggs

Alkaline: raw eggs

Neutral: sunny side up, soft-boiled eggs

Acidic: hard boiled, cooked scrambled eggs, omelets, egg substitutes

-----Milk

Alkaline: raw milk, fermented milk (yogurt, kefir, etc) with living probiotic culture

Neutral: home-made whole milk sour cream with living probiotic culture

Acidic: processed, pasteurized, sweetened milk and milk products, nonfat milk products, ice cream

-----Cheese

Alkaline: home-made fermented goat milk cheese

Neutral: home-made whole milk cow cheese

Acidic: processed, hard cheeses

-----Fish

Alkaline: sashimi, raw anchovy

Neutral: salted herring, or mackerel, salt cured fish

Acidic: processed, cooked, canned, frying, baked fish

-----**Poultry**

Acidic: processed, cooked, canned, frying, baked

-----**Meat**

Acidic: processed, cooked, canned, frying, baked

-----**Oils**

Alkaline: unprocessed, cold pressed, virgin vegetable oils, fresh avocado, raw nuts

Neutral: raw butter, cod liver oil, fish oil, non- sweetened coconut or almond butter

Acidic: processed, refined vegetable oils, “trans” fat, margarine, deep frying, processed animal fat (barbeque, frying, broiling, etc)

-----**Seafood**

Alkaline: Sundry raw seaweed

Acidic: processed, cooked, fried, canned

-----**Beverages**

Alkaline: Healing mineral water, plain water, diluted fresh squeezed vegetable juices, herbal teas such as chamomile, rose hips, etc

Neutral: non- sweetened coconut, soy or almond milk, green tea or Yerba Mate tea

Acidic: sodas, processed juices, sugar sweetened or artificial sweetened soft drinks, coffee, hot, sweet chocolate, black tea, all alcohol beverages

-----**Beans**

Alkaline: sprouted

Neutral: cooked in water

Acidic: processed, canned, fried

-----**Spices**

Alkaline: apple cider vinegar, ginger, garlic, turmeric, raw vegan dressings

Neutral: vinegar, raw pesto

Acidic: processed, canned, sweetened dressings

Chapter 28-Chronic Metabolic Acidosis and the Modern Western Diet

For individuals with a medical background

a. Acute and Chronic Conditions Accompanying Metabolic Acidosis

The last 60 years have provided positive results in treating acute extreme conditions such as hypoxia, hypovolemia, poisoning, infections and kidney, liver, heart, or lung failures connected with additional understanding of the pathophysiology of these life-threatening conditions. Many these conditions accompany oxygen deprivation and lead, instead of the aerobic Krebs Cycle, to anaerobic glycolysis. Anaerobic glycolysis is the biochemical pathway for cellular energy with manufacturing of lactic acid. This subsequently leads to a collection of acidic products (metabolic acidosis). Correction of metabolic acidosis is vital for acute diseases.

Nowadays, the idea of correcting metabolic acidosis is accepted more and more in the treatment of chronic conditions, as well. Restoring the proper acid – alkaline or acid – base balance is vital for entire human health and in particular, pancreatic health.

As authors' mentioned numerous times, the pancreas is an alkaline gland and pancreatic function vitally depends on the blood alkaline reserve. Metabolic acidosis is a condition where the blood alkaline reserve is depleted.

Chronic metabolic acidosis is now a pandemic. It leads to many metabolic disorders such as osteoporosis, Metabolic Syndrome, obesity, diabetes, hypertension, cardiovascular diseases, muscle wasting, gout, kidney and gallbladder stones, GI disorders and possibly cancer.

The authors strongly believe that digestive (pancreatic) disorders are connected with metabolic acidosis and intestinal dysbiosis making a vicious circle

Low exocrine pancreatic function ==> Dysbiosis (SIBO, Candida-yeast overgrowth) ==> Chronic Metabolic Acidosis ==> Low exocrine pancreatic function

Why do we need to focus on the alkaline diet for pancreatic health? Again, because acidity kills the pancreas! The pancreas is the key organ of the GI tract and suffers desperately from chronic metabolic acidosis much more than other solid organs.

Scientists have found that chronic metabolic acidosis is a common condition in modern societies and whole body acidity (acidemia – acidity in the blood) causes the development of many chronic degenerative diseases and accelerates the aging process. Acidemia is the hidden menace and is one of the “diseases of civilization”. Acidemia strikes most of the world's population as a price for urbanization and a western lifestyle.

b. Modern Food and Metabolic Acidosis

Chemically speaking, the definition of alkaline has the same meaning as the definition of base. In popular literature, we often see the words “alkaline” and “base” used intermittently in scientific books and articles.

Alkaline = Base

Researchers from the *Department of Medicine and General Clinical Research Center, University of California, San Francisco*, Frassetto L, Morris R.C, Sebastian A. (1997) demonstrated “low grade chronic metabolic acidosis exists normally in humans eating ordinary diets. This diet yields normal net rates of endogenous acid production (EAP), and that the degree of acidosis increases with age”. [62]

Indeed, diet-dependent acidosis-induced muscle wasting might be amplified by age because diet-dependent metabolic acidosis tends to increase in severity with age, which, in turn, appears to result from the normal age-related decline in the function of the kidneys. [180,181] “Failure to recognize the respective roles of the diet net acid load and the age-related impaired renal acid-base regulatory integrity has prevented recognition of the low grade acidotic state that exists in otherwise healthy adults, whose acidotic plasma acid-base composition traditionally has been viewed as normal”. [62]

Alpern, R.J., and Sakhaee, K., from the Department of Internal Medicine in Dallas, Texas, published the article *The clinical spectrum of chronic metabolic acidosis: homeostatic mechanisms produce significant morbidity* in the February 1997 edition of the *American Journal of Kidney Diseases*.

These researchers wrote that excessive meat ingestion and aging are a common cause of chronic metabolic acidosis. They stated that acidosis can occur despite normal blood pH and bicarbonate levels. They emphasized that it was still important to treat the acidosis despite these normal levels because of the deleterious effects of acidosis on bones, muscles and kidneys. [182]

“It is understandably difficult to think of “metabolic acidosis” when the values for plasma acid-base composition are in the range traditionally considered normal as the term “metabolic acidosis” implies pathophysiological consequences,” as experts in nutritional physiology, Frassetto L. *et al.* (1997) wrote. Indeed, “Although the degree of diet-dependent metabolic acidosis is mild as judged by the degree of perturbation of blood acid-base equilibrium, it cannot be considered mild as judged by its negative biological effect. In fact, such acidosis-induced pathophysiological conditions have a negative influence by causing hypercalciuria, dissolution of bone, protein catabolism and muscle wasting, and progression of renal disease”. [62]

Metabolic acidosis is an important acid-alkaline disturbance in modern humans. It is characterized by a primary decrease in body bicarbonate storage and is known to induce multiple

endocrine and metabolic alterations. Metabolic acidosis induces nitrogen wasting and, in humans, depresses protein metabolism.

European scientists Wiederkehr M, Krapf R (2001) in the article *Metabolic and endocrine effects of metabolic acidosis in humans* considered: “The acidosis-induced alterations in various endocrine systems include increasing peripheral growth hormone and insulin insensitivity, a mild form of primary hypothyroidism and hyperglucocorticoidism. Metabolic acidosis induces a negative calcium balance (reabsorption from bone) with hypercalciuria and a propensity to develop kidney stones. Negative calcium balance and phosphate depletion combine to induce a metabolic bone disease that exhibits features of both osteoporosis and osteomalacia”. [183]

On the basis of work by Zhang *et al.* (2009) that included more than 87,000 subjects, a high diet-dependent net acid load is also associated with a higher risk of incident hypertension. [187]

There is experimental evidence to support the notion that even mild degrees of acidosis, such as that occurring by ingestion of a high animal protein diet, induces some of this metabolic and endocrine effects. [64,183]

The authors of this book believe that chronic metabolic acidosis promotes the withdrawal of calcium from bones and muscles and moves the calcium into the blood system. Subsequently, the calcium is deposited in the arterial walls and it is a substantial mechanism in developing arteriosclerosis with age or “acidic lifestyles.” This may explain the common simultaneous existing of osteoporosis, arteriosclerosis and calcification; calcium deposit in the inner organs.

This process may play a role in the development of pancreatitis and production of intraductal pancreatic stones. The depleted alkaline reserve and metabolic acidosis alter the biochemistry of pancreatic juice with the decreasing of bicarbonate and causing pathological “chain reactions” or “vicious circles” which possibly damage the pancreatic tissue (pancreatitis).

By the practical experience of the authors, almost all individuals with frequent or intensive alcohol consumption suffer from severe metabolic acidosis. It manifests often by subclinical or mild attacks of pancreatic pain after alcohol consumption combining with very acidic pH in saliva and urine.

Acidity kills the pancreas in many ways. That is why all actions to keep the proper acid - alkaline equilibrium are difficult to underestimate. More information about harmful actions of the metabolic acidosis on pancreas can be found on *Chapter 4-Acidity Kills the Pancreas*.

An alkaline diet for pancreatic health focuses on the alkalizing ability of various foods, the functional condition of the digestive (pancreatic) system, health of the lungs and kidneys and the alkaline reserve of the body

c. Alkalizing Ability of Various Foods

Alkalizing ability of the foods does not only mean dividing the foods into acid-ash forming and alkaline-ash forming foods. The very important aspect of the alkalizing ability of foods is the transformation during metabolism and influencing the body's biochemistry. The simple example is the explanation of the alkaline action of sour tasting foods.

Mostly all acids, bases, and salts in the body fluids are electrolytes. Because of this, mineral solutions can conduct electricity in the water solution. This happens because electrolytes dissociate the ion pairs – charging pairs, not molecules. Non-electrolytes, such as sugar, do not allow current to flow in the water solution. Strong electrolytes always dissociate completely at 100%. Weak electrolytes will dissociate in solution, but they do so at less than 100%. Weak acids are acids that dissociate in water only partially. They are not ready to lose a hydrogen ion completely. They dissociate slowly in water to lose a hydrogen ion and exist in molecular forms in the water solution too.

Salts are the products of an acid - alkaline neutralization. There are four possible acid - alkaline reactions that produce salts in the water solution in ionic form:

Strong acid with a Strong base will produce a solution with $\text{pH} = 7 = \text{neutral}$

Weak acid with a Strong base will produce a solution with pH greater than 7 = **alkaline**

Strong acid with a Weak base will produce a solution with pH lower than 7 = acidic

Weak acid with a Weak base will produce a solution close to $\text{pH} = 7 = \text{neutral}$

Salts of weak acids with strong alkaline body's minerals guide to an alkaline pH range of a solution greater than 7.0

The reaction of weak acids from food with main alkaline body minerals such as sodium, potassium, calcium, and magnesium produces an alkaline solution. Weak acids include carbonic acid, acetic acid, lactic acid, citric acid, uric acid, etc. Most organic acids are weak and do not dissociate completely in water. This means that lemons containing weak citric acid promote the alkaline pH solution through the body metabolism. Malic acid is a weak organic acid found mostly in unripe fruits. It is the active component in many sour or tart foods such as an apple. Apple cider vinegar, which is sour by taste, consists of weak malic and acetic acids. By consuming those acids in small amounts, they provide some alkaline action in the body.

Vegetables and nonsweet sour fruits are great suppliers of minerals, weak acids and bicarbonate, which promote the healthy, slightly alkaline environment in the body

Acid – Alkaline Balance and the Functional Condition of the Digestive (Pancreatic) System

The functional condition of the digestive system, particularly exocrine pancreatic function, has a close relationship with acid – alkaline homeostasis. The pancreas is an important organ for regulating the acid - alkaline balance. The pancreas is an alkaline gland with the function to first produce strong alkaline pancreatic juice and second, to neutralize acidic chyme to make milieu for proper actions of digestive pancreatic enzymes. For this purpose, the pancreas produces a lot of bicarbonate, which it obtains, eventually, from blood.

Consumption of foods without natural digestive enzymes requires producing a large amount of pancreatic juice, which results in a loss of bicarbonate and minerals and depletion of the body's alkaline reserve

The pancreas has a serious influence on the alkaline reserve of the blood.

Unfortunately, low grade chronic metabolic acidosis is a “normal”, common condition in adult humans eating modern-day diets.[49]

This condition slowly deteriorates pancreatic health and pancreatic exocrine function, which leads to weakened digestion that causes problems in assimilating alkaline minerals and bicarbonates from food. For proper alkaline reserve; blood buffer system to keep constant blood pH close to 7.4 (7.35 - 7.45), sodium, potassium, calcium, magnesium and bicarbonates are necessitated.

Practically, more problems with digestion require more action to replenish the body's alkaline reserve. Additionally, lung or kidney disorders make this a necessary action, as well.

Chronic metabolic acidosis is dangerous for humanity. It involves most of the global population and causes epidemic proportions of Metabolic Syndrome, diabetes, cardiovascular diseases, digestive disorders, cancer, intestinal dysbiosis, and many other metabolic and degenerative diseases, which have grown during the past 50 years

d. The Pre-Agricultural Diet of Our Ancestors Was Alkaline-Formed

People had to function at their maximum physical and mental performance in order to survive for thousands of years. Weaker individuals or groups had a greater chance of being taken over by invaders, being eaten by predators, succumbing to sickness and being annihilated by natural disasters.

Theories surrounding the “survival of the fittest” dictate that those who are the most fit for their environment will survive. The digestive system and, of course, the pancreatic function of our ancestors worked perfectly well for hundreds of thousands of years and were fitted for the hunter/fisher/gatherer diet.



Unfortunately, the human digestive system cannot adapt to chemically modified, artificial and sometimes toxic products (which are staples of the present western diet). People cannot digest the foods that they are eating, and this leads to many “diseases of civilization.” One of the most prevalent and preventable results is chronic metabolic acidosis, which when left untreated, poses a considerable threat to human health.

The role of nutrition in human acid-base homeostasis has gained increasing attention in recent years. *The Second International Acid-Base Symposium, Nutrition–Health–Disease* was held in Munich, Germany, September 8–9, 2006. International scientists provided deeper insight and updates in the scientific basis of the relation among diet, acid-base homeostasis, physiology, and pathophysiological consequences.[186]

“Although in healthy humans, homeostatic mechanisms and the kidneys' capacity to excrete acid equivalents can prevent strong diet-induced alterations in blood pH, even moderate increases in blood hydrogen ion levels as a result of unfavorable diet composition can have long-term consequences for the occurrence and progression of a number of diseases.” That characterization of the acid-base yield of the Paleolithic diet would seem to have important public health implications, because net base-yielding diets have shown multiple health benefits.” This quote was from the *Foreword to the Contributions of the Second International Acid-Base Symposium* by Vormann J., Remer, T. (2008).[186]

American researchers Eaton SB *et al.* (2010) [184] performed the interesting study that compared the remote ancestors, who lived 100,000 - 50,000 years ago and modern nutritional milieu. Despite the genetic evolution during that time; however, core biochemical and physiologic processes have been preserved. “In East Africa, late Paleolithic plant-to-animal energy intake ratios would have approximated 50:50 and diet-dependent net endogenous acid production (NEAP) would have been alkaline—the norm for human biochemistry, physiology, and bone health”.

Nutritional Comparisons between Our Ancestors and Modern Western Man, and the Impact on Pancreatic Health

From Eaton SB, Konner MJ, Cordain L. Diet-dependent acid load, Paleolithic nutrition, and evolutionary health promotion. *Am J Clin Nutr* 2010; 91:295–7 [184]

-----Ancestral ----- Contemporary Western

Total energy intake -----More -----Less
 Caloric concentration -----Very little -----A lot
 Dietary bulk -----More -----Less
 Total carbohydrate intake -----Less -----More
 Added sugar and
 refined carbohydrate -----Very little -----Much more
 Glycemic load -----Relatively low -----High
 Fruit and vegetables -----Twice as much -----Half as much
 Antioxidant capacity -----Greater -----Lesser
 Fiber -----More -----Less
 Soluble: insoluble -----Closer to equal -----Far more insoluble
 Protein intake -----More -----Less
 Cholesterol intake -----More -----Less
 Micronutrient intake -----More -----Less
 Electrolytes -----Much more potassium -----More sodium
 Dairy products -----Mother's milk only -----Considerable
 Cereal grains -----Very little -----A great deal
 Free water intake -----More -----Less
 Acid-base effect -----**Alkaline** -----**Acidic**
 Net Endogenous Acid
 Production (NEAP)

No question, that food is a main cause of chronic acidity in the body. Many scientists connect chronic metabolic acidosis with drastic changing in the quantity and quality of food supply, by comparison with our ancestors.[49, 62, 63, 64] Such insight has potential biomedical significance because nearly all the genes, and epigenetic regulatory mechanisms we carry today, were originally selected for behaviorally modern humans, who appeared in Africa between 100,000 and 50,000 years ago.[184]

Proponents of a research referred to as “evolutionary health promotion” suggest that information about diets consumed by pre-agricultural *Homo sapiens* might contribute importantly to nutrition science through the application of evolutionary principles.

Nutrition scientists are showing growing interest in the diet patterns of pre-agricultural (hunter-fisher-gatherer) humans. Pre-agricultural diets are reportedly predominantly net base- producing in contrast to the net acid-producing modern Western diets.[185]

Cordain L, Eaton SB *et al.* (2010) in the work *The paradoxical nature of hunter-gatherer diets: meat-based, yet non-atherogenic* [185] found that pre-agricultural diets of our ancestors, despite a lot of the animal proteins and fat, did not cause the signs of cardiovascular diseases – the #1 modern day human killer.

An explanation of this “paradox” can be found in the quantity of food the pre-agricultural diet filled with the natural enzymes, potassium, magnesium, vitamins, antioxidants, essential fatty acids, bicarbonate, etc. Nevertheless, this diet formed an alkaline environment. Moreover, the authors of this book observed numerous times that the switch to a hunter-gather diet showed many health benefits.

Many nutrition scientists in the world estimate the net systemic acid load supplied by the diet [*net endogenous acid production* (NEAP)]. The NEAP for 159 replicated pre-agricultural diets was **minus 88 ± 82 mEq/d**; 87% were *net base-producing*. The NEAP for the average American diet (as recorded in the third National Health and Nutrition Examination Survey) was **plus 48 mEq/d**; they were *net acid-producing*. [64]

According to Sebastian A., Fressetto L. *et al.* (2002), “The historical shift from negative to positive NEAP was accounted for by the displacement of high-bicarbonate-yielding plant foods in the ancestral diet by cereal grains and energy-dense, nutrient-poor foods in the contemporary diet—neither of which is net base-producing”.

Food with Natural Digestive Enzymes Helps to Maintain the Proper Acid – Alkaline Balance

There is not too much focus in literature on the food differences between pre-agricultural diets and modern Western diets regarding the content of natural digestive enzymes and their influence on the acid-alkaline balance.

Shifting of Foods to Acidity or Alkalinity Levels

Alkalinity derived from plants foods, foods that contain the living enzymes, natural unprocessed foods, organic foods

Acidity derived from animals’ foods, all processed food without the living enzymes, artificial, nonexistent in nature products, non-organic foods.

Foods that contain living natural digestive enzymes help the body to maintain the proper acid - alkaline equilibrium despite the acidic overload of Western diets. This factor, in the authors’ opinion, may play a significant role in the health of the pancreas, the important organ for

regulating the overall acid - base balance of the body. On the other hand, almost all gastrointestinal symptoms and low exocrine pancreatic function go together with an improper acid - alkaline balance.

We live in a society where it is almost impossible to avoid altogether eating some artificial, chemically modified, or processed foods that shift our body's acid-alkaline balance towards acidity. To avoid negative impact of chronic acidity one has to focus on healthy whole food and try to save the digestive enzymes in it.

Simple pH measurement via litmus paper can give the real picture of the acid – alkaline balance. If you have acidic saliva and urine; a pH less than 6.6, there is the way to stop acidification. Consuming alkaline-producing foods and supplying your body with healing mineral water and mineral supplements can accomplish this.

To keep the proper acid – alkaline balance the body has three basic supplies for minerals and bicarbonates: food, healing mineral water, and mineral supplements

Interesting facts at a glance:

The endproducts of metabolism of carbohydrates, fats, and proteins are acids

Whole foods have a wide variety of minerals and bicarbonates that maintain the body's optimal slightly alkaline environment

Modern processed food is acid forming

Modern processed foods without natural digestive enzymes force the pancreas to overwork. The pancreas needs to produce and release a great deal of alkaline pancreatic juice that depletes the body's alkaline reserve

The same food product may have alkalizing or acidifying effects, which depend on its processing

Nutrition scientists compared the diets of humans' remote ancestors, who lived 100,000-50,000 years ago, with modern nutritional diets and discovered that the ancestry diets were alkaline and full of natural digestive enzymes

Almost all gastrointestinal symptoms and low exocrine pancreatic function go together with the improper acid-alkaline balance, resulting in chronic metabolic acidosis

To correct chronic metabolic acidosis the body must be supplied with minerals and bicarbonates by 3 ways: food, healing mineral water and mineral supplementation

The simple measure of saliva and urine pH at home opens a window inside the body metabolism

Chapter 29-Water: Best Friend of the Pancreas

For individuals lacking a medical background

Water is a molecule that makes up more than 70% of the Earth as well as 70% - 80% of the human bodies. Because of this, our bodies are just as dependent on water as they are oxygen. Without water, life on Earth and in our body would dissipate in a matter of days. It is necessary to understand the value of water in our daily lives and health.

Water is extremely beneficial because it is a solvent and catalyst for many physiological and chemical processes that take place in our body. Water constitutes the basic milieu in which chemical reactions occur in every organ of the body. Water is also necessary to enable enzymes to function more efficiently. Water takes part in all-important enzymatic processes such as keeping temperature normal, removing toxic materials from the body and transporting oxygen and nutrients to the tissues. Additionally, water is essential for metabolism and digestion. Water is necessary for all chemical reactions involved with digestion. In fact, water is essential for breaking down proteins, carbohydrates and fats into smaller parts. Without water, nutrients are not separated nor easily assimilated.



Imagine our body cells as fish in an aquarium. Fishes can only be healthy if the water is unimpaired around them, similar to our cells being healthy if their fluids are unimpaired. As our bodies become dehydrated and polluted by the things we ingest into our bodies, the quality of the fluids inside and outside our cells is compromised. Just like fish in an aquarium, our cells become ill and fail, as does our health.

The importance of drinking adequate amounts of water and maintaining a well-hydrated state is the first principle of health. We get water by drinking adequate water, healing mineral water and herbal tea or obtaining it from water-rich food such as fresh vegetables, fruits, soup, blends, and juice. Because of the high water composition in the body, it is necessary to have an adequate water intake to promote excellent health and optimal cell function.

Good health cannot be achieved without adequate water consumption

Dehydration occurs at epidemic rates. Dehydration acts as a huge stress on the body and is one of the major factors that inhibit the healing and rejuvenation processes. All chronic diseases are accelerated by inadequate water intake. Many signs of aging, including the loss of skin and muscle elasticity, muscle wasting, digestive problems and decline in brain function are largely because of cells losing water.

Dehydration is all too common in the majority of people with GI tract problems

Simple Signs of Dehydration

Dry mouth and lips

Normally, the mouth is wet; saliva is liquid and easy to spit out. Dehydration causes the saliva to be thick and difficult to spit out. Dehydration also makes the mouth feel dry. Unfortunately, most people mistake this sensation for hunger. This mistake is one of the most common reasons people overeat. Yes, eating is the ideal and fastest way to moisten the mouth with saliva. In most cases, when the body feels hungry, it is actually thirsty. This means that one should drink enough water every day for the proper regulation of the hunger process. Water helps our bodies feel satiated against hunger.

Abnormally dark-colored, turbid and pungent urine

The concentration of impurities in urine is what causes it to have that darker yellow/orange color with a strong odor. This condition informs us that there are a number of contaminants to be excreted in the urine, and there is little water used for the excretion.

Dry skin

Normally, human skin is supposed to be soft, resilient and appearing moist and free of sharp odors. If the skin is dry, the body is also dry.

Hard stool and constipation

During dehydration, the waste material in the digestive tract moves through the bowels extremely slowly. As more food is eaten, more waste products pile up in the digestive tract, resulting in constipation.

Low energy and stamina, weakness and negative thoughts

One of the easiest ways to decipher dehydration is to evaluate your energy level and “happiness” feeling, followed by drinking three cups of water.

Why Don't People Drink Water?

While water is particularly beneficial to health, this vital fluid is often overlooked in diets with life-threatening consequences. Why does this happen? There are a few reasons to answer this question.

Water is cheap (and when discussing plain tap water, it is free) and easily accessible. In people's minds, something expensive should have more health value. This is not always correct. For example, some individuals can spend a lot of money for specific anti-wrinkle cream or expensive procedures for beautiful skin, but in reality, chronic dehydration is making the skin look like dried prunes.

In health propaganda, there is not too much information encouraging people to drink plain water. All marketing tools point to how useful and beneficial it is to drink soft drinks, "special" water, over sugary juice and coffee.

Many people assume that, by drinking beverages other than water, they are supplying the body with an adequate amount of water. But this is not the case. The habitual over-consumption of sweet and diet soda or coffee eliminates the water from the body and can lead to a chronic state of dehydration. The sugar, caffeine, and other items in sodas all contribute to the high rates of obesity and indigestion and the dehydration epidemic in the United States. Moreover, caffeine works as a powerful water pill causing additional dehydration.

All sweet sodas and caffeine expeditiously switch to the body's acidic condition. Unhealthy conditions associated with chronic body acidity include diabetes, Metabolic Syndrome, kidney disease, heart disease, osteoporosis, and poor dental health. It can be easily proven that saliva and urine pH after drinking a "favorite" soda and/or caffeine shall obviously be more acidic.

In many cases, when asking individuals with signs of dehydration why they do not drink enough water, answers include "I am not thirsty" or "I do not want to drink water." Usually, the clear sign of dehydration is thirst, which generally occurs when a person has already experienced up to 2% water loss or 4 -5 pounds of water deficiency. In people over age 50, the body's thirst sensation diminishes and continues diminishing with age. Many senior citizens suffer symptoms of dehydration.

Some adults experience bladder control problems. To compensate an "overactive bladder," they avoid drink fluids both to prevent embarrassing accidents and visit the bathroom too often.

Some people suffer from decreased kidney function and receive erroneous advice not to drink water to decrease the kidney effort. On the contrary, kidney function is worsened by decreased water intake. If there is not enough water to release waste products through the kidney, the body will withdraw fluid from the body tissues anyway, thereby, increasing the chances of dehydration and exertion on the kidney.

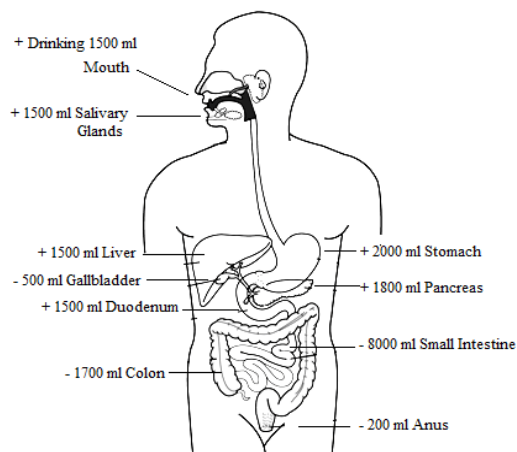
Water loss can be aggravated not only by inadequate water intake, but excess soda, caffeine and water-pills. Water pills (diuretics) work by elevating the rate of urination to force the body to excrete water. By their very nature, diuretics promote dehydration and the depletion of minerals. Many illnesses that are treated with a diuretic medication, often can be healed successfully with simple lifestyle changes, including weight loss, eating a healthier diet and correcting nutritional and hormonal imbalances. Nevertheless, before stopping any medication, work closely with your healthcare provider and assess the risks and benefits of not taking water pills.

Water is such a nourishing item for the body. One of the main benefits of water is that it helps to thin the blood. Water deficiencies cause the blood to thicken and to have an almost mudlike, ketchup consistency. Thick blood is exactly what it sounds like. There are many reasons for thick blood, but dehydration is a very common condition. Dehydration and lack of water promote thicker blood, which is more prone to clotting and decreasing microcirculation.

The gastrointestinal tract consists of the main organs for water and electrolyte metabolism. Normally, we can obtain water and electrolytes only by drinking or eating.

Each day sees an exchange of water taking place in our bodies, especially in the entire digestive tract. Digestion is a huge exchange of fluids inside the GI tract (an approximate 30 foot long tube that extends from the mouth to the anus). Saliva glands produce approximately 50 ounces of saliva, the stomach produces 65 ounces of stomach juice, the duodenum produces 50 ounces of intestinal juice and the pancreas and liver also create nearly 85 ounces of pancreatic juice and bile. Water is mandatory for the creation of all these liquids.

Water Exchanges in the GI tract



Most of these digestive fluids (270 ounces) shall be absorbed back into the blood in the small intestine and the rest of the fluids are absorbed in the large intestine. This is an ongoing normal process. Water plays a grand role in the digestive system. If there is low water intake, the digestive organs will not work properly.

Dehydration may also lead to pancreatic problems and is one of the most common underlying causes of pancreas disease.

Water and the Pancreas

The pancreas produces almost (8 – 12 cups) of pancreatic juice daily, which is used in the digestion of food. Pancreatic juice is a clear, colorless, alkaline fluid that is composed of water, minerals, proteins (enzymes) and bicarbonates.

Pancreatic juice is 97.6% water. Pancreas only obtains water from its blood supply. Through the blood, the pancreas receives special blood messengers – digestive hormones, which regulate many pancreatic functions. Additionally, water eliminates the toxic products from the pancreas. More than other organs, the pancreas is vulnerable to even small changes of the blood fluids, especially to a negative water balance - dehydration.

Surprisingly enough, a lot of activities, situations and disorders cause a negative water balance such as:

- Not enough drinking of water, fasting without water and difficulties with swallowing
- Losing water through perspiration (hot temperature environment, fever, exercise and sports)
- Losing water through diarrhea (food poisoning, infections, Crohn's disease and ulcerative colitis)
- Losing water through vomiting (food and chemical poisoning, gastritis and anorexia)
- Losing blood (acute and chronic hemorrhaging)
- Losing water due to prolonged exposure to dry air (highflying airplanes)
- Losing water by using stimulants (methamphetamine, amphetamine and caffeine)
- Losing water after excessive consumption of alcoholic beverages
- Losing water after ingesting water pills
- Losing water due to diseases (diabetes and the first stage of kidney failure)
- Losing water after surgery, wounds and burns

All of these scenarios cause dehydration, blood thickening, whole body acidity and decrease blood supply to the pancreas. Acidity kills the pancreas!

Thus, the pancreas produces less pancreatic juice with low amounts of pancreatic enzymes leading to many consequences from simple indigestion to severe pancreatic damage.

The pancreas needs water to bring all vital nutrients to itself, as well as, to remove toxic substances from it. If there are not enough water supplies in the pancreas, then toxic substances (alcohol or drugs) become more concentrated and easily harm this gland. Alcohol has terrible triple actions on the pancreas because it causes dehydration, acidity and toxicity simultaneously. The pancreas is very sensitive to inner toxins. Hence, it needs adequate amounts of water constantly surrounding it and nourishing it for normal functioning.

Pancreatic juice brings the digestive enzymes from the pancreas into the duodenum. This juice consists of digestive pancreatic enzymes in an inactive form. Dehydration changes the biochemistry of pancreatic juice and may activate digestive enzymes inside the pancreas. Activated pancreatic enzymes start to digest their own tissue causing self-digestion and damage pancreatic tissue. Dehydration is a possible trigger of developing pancreatitis.

Abdominal cramps are the most common signs of pancreas dehydration and thickening of bile. Water maintains normal muscle tone by giving muscles their ability to contract and relax properly. Cramping abdominal sensations mostly rely on smooth muscles spasms, sphincter of Oddi spasms and irritation of the small intestine with “wrong way” traffic (bile and pancreatic juice refluxes).

Dyspeptic pain, which can range from simple heartburn to gastroesophageal reflux disorder (GERD) or upper abdominal cramps, may also be one of the early signs of dehydration.

F. Batmanghelidj, MD in the book *"Water: For Health, for Healing, for Life: You're Not Sick, You're Thirsty!"* wrote that "thirst pains" are a signal of a water shortage in the body and he suggested treating this pain with water.

The human body is very complicated, well regulated and in emergencies, has a survival mechanism. In cases of dehydration or blood volume loss, all efforts of the body are focused to save the vital organs such as the brain, heart, lungs and muscles for surviving. To keep those vital organs alive and functioning the abdominal vessels are contracted to redistribute the rest of the fluid supply and blood volume to vital organs. The pancreas suffers the most because dehydration causes tissue acidity and thickening of pancreatic juice and this can activate aggressive pancreatic enzymes inside the pancreas leading to damage, inflammation and possibly pancreatitis. Doctors described acute pancreatitis in marathon runners that suffer from dehydration.

Dehydration is an independent risk factor for pancreatic disease. It is impossible to treat disorders of the pancreas when a patient is dehydrated

Our bodies consist of 70% water. Doesn't it stand to reason that our diets should also reflect that reality? A diet that consists of 70% pure water and water-rich foods is the only one that allows

your body to vitalize and cleanse itself. The typical American diet that consists of only 15% water-rich foods is nothing but suicide, even though it is committed over a number of years.

So what are some water-rich foods? For example, the fresh vegetables and fruits usually “pass the test” and consist of more than 70% water. Liquid soups may be helpful. Sprouting, juicing, and blending should be utilized for body rehydration. Some methods of cooking such as steaming, slow thermos cooking, and boiling can save water and minerals in products. Cooking with high temperature such as frying, grilling, roasting, baking, smoking, microwaving, drying and so on, don’t “pass the test” and these foods have much less than 30% - 50% amounts of water.

How Much Water Should You Drink?

The general rule of thumb is to take your weight in pounds, divide by two.

The resulting number is the amount of water you should drink (in ounces) on a daily basis

The Mayo Clinic staff recommends *Eight, 8-ounce glasses of water a day or the "8 x 8 rule"* — drink eight 8-ounce glasses of water a day (about 1.9 liters). As a unit of measurement, eight ounces are equal to one cup. <http://www.mayoclinic.com/health/water/NU00283>

If you are very active or sweat a lot, or your body is toxic, you may need additional water. Nevertheless, if you have congestive heart failure, this may be too much water for you.

The advice “your kidney is weak, you have to drink less water” is absolutely incorrect, medically speaking. The kidney is a filter, and it is designed to clean our blood from toxic water-soluble substances. The kidneys cannot function properly without enough water. The less thick blood, the less concentration of toxins in the blood, the easier it is for the kidneys to filter less concentrated urine. Water acts as a water-pill and diuretic. Drinking water usually normalizes the water balance in the body.

Do not experiment on yourself. The ideal results for rehydration can be obtained by working with a healthcare professional knowledgeable in natural therapies.

When Should You Drink Water?

The following tips will help you ensure that you drink enough water daily and avoid the disastrous effects of dehydration.

- > Every day, aim to drink as many ounces of water as half of your body weight in pounds. If you’re currently drinking much less water than this, increase your intake gradually.
- > Use the following schedule to achieve your daily water intake requirements in an optimal fashion. Drink a glass of healing mineral water immediately upon waking up in the morning. This will help to replace the water and minerals, which are lost during sleep. Drink one glass of

water (or healing mineral water) 45 minutes or half hour prior to each meal. This will help to restore the amount of water and minerals used by digestion.

> Because a cell's ability to absorb water is dependent on salt, water, and salt are the most essential nutrients to good health. Drinking Karlovy Vary Healing Mineral Water will also replace lost minerals and trace elements.

> Because alcohol suppresses water absorption by cells and works as water-pill by itself, it is best to limit its consumption. Furthermore, because alcohol is a toxin, additional water is drawn from the body to process and eliminate it; therefore, after drinking alcohol in the evening, four cups of the healing mineral water in the morning is a very wise idea.

The big question regarding water is, *"Is it okay to drink water with meals?"*

This is important because, in most American restaurants, you will be habitually offered a glass of water with ice upon appearance.

The fact is ice or simply cold water causes the contraction of the stomach's blood vessels and spasms of the muscles of the stomach wall and decreases the gastric secretion. The cold ice water literally pushes food out of the stomach. The radiology experiments found that if food is washed down with cold drinks, the food leaves the stomach fast instead of the normal 4-5 hours. The time is reduced to 20 – 30 minutes.

When drinking a cold drink after a protein meal, the food does not have time to be digested, and it quickly travels into the small intestine. Improperly digested foods create an enormous effort from the pancreas to split the undigested proteins. The food particles also putrefy in the gut, leading to the severe damage in the small and large intestines and promoting dysbiosis. In addition, this empty stomach pushes the person to eat more. You are not only wasting your money on food, but also receiving plenty of empty calories making you fat and sick.

The negative news for ice cream lovers is that, after a meal, ice cream affects the stomach and pancreas the same way. Food leaves the stomach quickly and protein will remain undigested. It is not healthy to drink "water with ice" with protein and fat-rich foods.

On the other hand, drinking sparkling water (water with dissolved carbon dioxide) in room temperature, 20-30 minutes before meals, increases saliva and stimulates stomach secretion. This is often the way Europeans drink the water before meals; therefore, the European habit of drinking slightly sparkling water before meals may have positive actions on digestion.

So, to drink or not to drink during meals? It is difficult to say but here are some facts.

When we smell or look at food, our salivary glands start producing a lot of saliva. During dinner, our salivary glands release cups of liquid saliva to aid mastication and easy to swallow chewed food particles into the esophagus. This alkaline saliva travels into the acidic stomach. Mother

Nature is very smart and places a lot of liquid saliva in the stomach. During the meal, it is not harmful to drink a glass of wine, water at room temperature or warm herbal tea.

Food, especially proteins (meat, fish, poultry, etc.) can be digested in the stomach in 4-6 hours. In this time, a lot of liquid gastric juice is produced. Dehydration decreases gastric secretion and may promote keeping undigested food in the stomach longer. Drinking one cup of water after 1 hour of meals can add more fluid for continuous gastric secretion.

We regularly encourage our patients with gas, fullness, belching, or cramps after large and heavy meals, to drink a cup of herbal (chamomile) tea. This has shown to provide very positive results.

So, the conclusion comes from you. To drink or not to drink during the meal depends on moderation, person's habits and the type and amount of liquid.

Indeed, if the water in the slightest degree interferes with digestion, any soup would inflict the harm to the body. Nevertheless, for years, people eat soups every day, and their digestion and weight was normal.

What Kind of Water Should You Drink?

Although dehydration can significantly compromise your health, drinking poor quality water poses serious risks, as well. If someone is dehydrated, drinking any water is paramount. This includes tap water from the faucet (even chlorinated and fluoridated) or noncontaminated well water (mountain spring water and bottled water). However, the optimum results with water therapy can be achieved by drinking clean water, free of chemical contaminants (including chlorine, pesticides, heavy metals, arsenic, trihalomethanes, medications, volatile organics, pesticides, etc).

There is only one method that will remove all of these contaminants - distillation. Distilled water is probably the ideal overall choice, as it is readily available in most supermarkets and presents a cost effective option for everyday use. By its very nature, distilled water does not (should not) contain any impurities. An alternative to purchasing distilled water in stores is to buy a home distillation process.

There are other multistage combinations of purification — reverse osmosis, deionization and filtration. Systems should be tested and certified by the Water Quality Association and the National Sanitation Foundation. We suggest researching the system you are going to use and check the water periodically to ensure that the system is working properly.

Drinking water costs little does not have side effects and it can lower your risk of premature aging, becoming overweight, chronic diseases and digestive problems! Not too shabby.

Water is the best friend for pancreatic health

Eating Soup

Eating soup is common in many world cultures. Soup is considered to be very useful for digestive health. Soup is usually cooked at home with water, vegetables and some time with organic chicken or wild fish with healthy fats.

We are not talking about artificial soups from cans, packets, powder, and concentrates with artificial coloring, flavoring, hydrogenised fats, preservatives, MSG, or lots of refined salt.

There are also national traditions for preparing soups. The composition and methods of soup preparations are largely depended on climatic conditions, tastes, and ingredients available.

However, in some diseases (especially in the *pancreatic failure* stage), soups may have deleterious effects. Basically, this refers to soup dishes with meat, chicken or fish broth or soups with animal or artificial fats, spices and wheat flour.

Ingredients for Healthy Soups:

Vegetables: onions, celery, carrots, tomatoes, parsley root, cabbage, leek, zucchini, baby spinach, turnips, daikon, rutabaga, asparagus, green beans, green peas, broccoli, cauliflower

Water: water, vegetable stock, chicken broth, fish bouillon

Grains: brown rice, quinoa, barley flakes*, oat flakes*

Spices: oregano, basil, garlic, lemon juice, rosemary, thyme, ginger, sage, parsley

Starchy vegetables: potatoes, pumpkin, sweet potato, artichoke, zucchini

Legumes: kidney beans, lima beans, lentils

Oils: olive oil, butter, homemade sour cream, coconut oil

☐ if there is no sensitivity to gluten

Soup Benefits

1. Vegetable soups are extremely useful for children and individuals with digestive (pancreatic) disorders. They are low in bad fat and high in fiber, vitamins, potassium and bioflavonoids. Vegetables in soup retain more vitamins and minerals than frying and stewing. Vegetarian soup can please almost everyone. Adding soup to a daily diet may protect the body from the diseases of the gastrointestinal tract.

2. However, this is only true for properly cooked soup. Soup should only be cooked one time. If soup is prepared to last for a few days, kept in the refrigerator and reheated, this causes many vitamins to be destroyed and the usefulness of the soup is greatly reduced.

3. Vegetable soups are indispensable for some problems with low stomach secretion such as when the stomach acidity is lowered or when the stomach does not produce an adequate amount of gastric juice. Light vegetable soup is ideal for digestion. However, in ulcers and chronic gastritis with high gastric acidity, fat, meaty soups should be excluded.
4. A soup a day washes the pounds away. Soup may also reduce appetite. People who regularly eat liquid vegetable soups consume on average 20 percent fewer bad calories than those who neglect them.
5. Soup slows down the pace of eating. It takes the brain 20 minutes to receive the signal about feeling satiated. During that time, a ton of “empty” bad calories can be eaten. People that ignore soups have a tendency to eat a lot and gain weight. Eating soup is a low-calorie manner of satisfying a person's need for a definite volume of food.
6. Slow absorption of soup will help the brain to determine exactly when the stomach is full.
7. Usually people sit down and slowly eat hot soup. It is difficult to gulp it down because the soup is hot. Placing soup in a large bowl, you are fooled into thinking you are eating a big portion.
8. Soup adds positive emotions to the eating process. The rich aroma and refreshing warmth of hot broth, appetizing appearance, taste spreads throughout the body, awakes all the senses and allows for pleasure to be received from eating.
9. Most vegetable soups are alkaline foods. Minerals and bicarbonate from vegetables combine with water to promote a healthy acid – alkaline balance. Additionally, nutritious vegetable soups will nourish the body as waste is flushed away. Vegetable soups contribute to body cleansing and may lower cholesterol and blood sugar. Eat homemade soup whenever possible, as artificial soups are loaded with empty calories, salt, and chemicals. As a result, the toxic burden increases.

Vegetable liquid soups are a very good source for water and vital nutrients. Hence, soup can be eaten in all stages of exocrine pancreatic deficiency.

In the *acidic pancreas and bile* stage, eating vegetable soups improves the entire digestion, supplies vital nutrients and helps to control weight and poor eating habits. Vegetable soup is alkaline-formed food.

In the *pancreatic deficiency* stage, some people need frequent, properly combined liquid meals. In addition, in some disorders at this stage, people cannot eat raw vegetables, fruits and juices because they have irritant effects. Vegetable soup can be ideal food for them.

In the *pancreatic failure* stage, vegetable soups are the primary dietary choice. Some ingredients enhance the aroma and taste and increase the nutritional value of these soups. Some vegetables, herbs and spices may improve the pancreatic function, normalize the acid – alkaline balance, suppress the growth of Candida-yeast and other parasites and promote friendly intestinal flora.

Eating vegetable soup is a proper way to rehydrate the body

For individuals with a medical background

Progress of surgery in the last 60 years is closely related with the progress of understanding the pathophysiology of extreme conditions such as hypoxia, the severe hypovolemic state connected with losing blood, water, electrolytes, or acidosis.

Now, we cannot imagine any hospital without anesthesiology or intensive therapy departments, where the correction of severe water and electrolytes imbalances is the doctor's daily routine. The treatment of dehydration and acidosis should play an important role in the practice of all the branches of medicine.

Author Peter Melamed was trained as an anesthesiologist and worked as a MD in the ICU and PICU for more than 15 years. Hundreds of patients were brought to these departments following bleeding, trauma poisoning and surgery. Many patients were admitted with severe acute abdominal conditions such as ulcers, pancreatitis, peritonitis and abdominal infections. The first action taken to save a life in an acute situation was restoring their water and electrolyte imbalances and normalizing the acid-alkaline balance (correction of metabolic and respiratory acidosis).

It seems reasonable to presume that many actions taken to treat acute conditions may be useful in the treatment of chronic conditions, as well. Later, working as a MD in the outpatient department with patients with chronic conditions, correcting the dehydration, metabolic acidosis and mineral deficiency continued to be his priority.

He strongly believes, according his practical experience, that the correction of water, electrolyte and acid – alkaline balance in all acute or chronic, digestive (pancreatic) disorders can really assist with the root of the digestive problems.

Although a person may drink only about 1.5 L/day of water, the small intestine receives 7-9 L/day as a result of the fluid secreted into the digestive tract by the salivary glands, stomach, pancreas, duodenum, liver and gallbladder. Most of fluids and electrolytes in the lumen of the digestive tract are absorbed in the small intestine. The small intestine absorbs most of the fluid and passes about 1.5 - 2.0 L/day of the digestive fluid to the large intestine. The large intestine absorbs about 90% of this remaining volume leaving less than 200 ml/day of fluid to be secreted in the feces.

Absorption of water in the intestine occurs passively as a result of the osmotic gradient created by the active transport of ions. The epithelial cells of the intestinal mucosa are joined together much like those of the kidney tubules and, like the kidney tubules, contain Na^+/K^+ pumps in the basolateral membrane. The analogy with kidney tubules is emphasized by the observation that aldosterone, which stimulates salt and water reabsorption in the renal tubules, also appears to stimulate salt and water absorption in the ileum.[179]

Circulation of Fluid within the Gastrointestinal Tract

Origin of Secretion of Fluid in the GI Tract--Volume Secreted Per Day in ml approximately)

Saliva Glands ----- 1,500
Stomach --- 1,500–2,500
Liver (Bile) -- 1,500
Pancreas -- 1,500 - 2,000
Duodenum --- 1,500 - 1,800

Origin of Absorption of Fluid in the GI Tract----- Volume Absorbed Per Day in ml

Small Intestine --- 7.000 - 9.000
Large Intestine --- 1,500 - 2.000
Gallbladder --- 400 – 600

The GI tract is a long tube with many chambers such as the mouth, stomach, small and large intestine. Almost 9-10 liters of fluid travels inside and approximately the same amount of fluid reabsorbs into the blood every day. This cycle has a close relationship to the regulation of water, main electrolytes (sodium, potassium, magnesium, and calcium), acid – alkaline balance, micro- and macro-circulation, immune and hormonal functions. The digestive system is a main organ of water and electrolyte metabolism and acid – alkaline balance.

The GI tract is the main organ where the human organism is supplied with water, minerals and trace elements. Any problems with the proper metabolism of water, minerals, and trace elements causes problems with the proper work of many inner organs and especially all the organs of the GI tract. The prime sufferers are the large digestive glands: the liver and pancreas, which produce almost 2.5 ml of alkaline bile and pancreatic juice full of water, minerals, and bicarbonate.

The main subsequences of water loss are hypovolemia (with decreasing of microcirculation), cellular hypoxia, high blood viscosity, hyper coagulation, toxemia and metabolic acidosis. No question that they negatively influence all body functions.

Regarding pancreatic health, water loss and dehydration may cause:

1. Metabolic acidosis: acidity kills the pancreas
2. Premature activation of the digestive enzymes inside the pancreas with self-digestion
3. Spasms of the sphincter of Oddi that can increase pressure in the pancreatic duct
4. Low activity of pancreatic digestive enzymes

5. Calcium precipitation inside the pancreas
6. High inner toxicity

Clinical practice supports the fact that water loss can cause acute and chronic pancreatic damages. Medical literature describes various cases of acute pancreatitis such as after severe diarrhea, after a few days of water deprivation, after blood loss, in anorexic individuals and after severe water loss in marathon runners.

In the experience of the authors, they have often detected mild attacks of pancreatic pain after strict and prolonged fasting. They have observed many cases of acute pancreatitis after severe dehydration in alcoholics and two lethal cases of acute pancreatitis in obese persons after fasting.

Nwokolo, C, and Oli, J. (1980) published the article, *Pathogenesis of juvenile tropical pancreatitis syndrome* in *The Lancet* suggesting that dehydration may play a role in the pathogenesis of juvenile tropical pancreatitis syndrome (JTPS).[264]

Barzilai, A. *et al.* (1986), [265] from the Pancreatic Research Laboratory at the Mount Sinai School of Medicine in NY, studied the connection between hypovolemic conditions and pancreatic function. They found “Hypovolemia induced significant decreases in pancreatic flow, bicarbonate and amylase secretion.” Furthermore, “pancreatic secretion is diminished by hypovolemia that this is initially reversible when hypovolemia is brief but that the disturbance of function progresses to inflammatory pathology when hypovolemia is prolonged”.

Scientists from the same laboratory, Robert, J.H. *et al.* (1988), concluded in their article, *Hypovolemic shock, pancreatic blood flow, and pancreatitis* “relative spoliation in pancreatic blood supply as hypovolemia proceeds supports an ischemic etiology of acute pancreatitis (AP), which could account for some of the so-called idiopathic cases of AP”. [266]

Dr. F. Batmanghelidj, MD dedicated his professional life to study the effects of chronic dehydration on the human organism. He considered the abdominal spasms and pains as a symptom of dehydration. It was his opinion that chronic abdominal pain should be translated at first as a signal of thirst.

Dr. F. Batmanghelidj, MD, himself a political prisoner, treated 3,000 prisoners with abdominal pains (possible ulcers) by simple water in the Evin political prison in Teheran, Iran from November 1979 to May 1982. The report of his findings was published as an editorial called *A new and natural method of treatment of peptic ulcer disease* in the *Journal of Clinical Gastroenterology* in June 1983.

According to Batmanghelidj MD, chronic pain, if it is not explained by injury or infection, should be interpreted as dehydration of the affected area. [276] All of these pains should be treated with adjustment to daily water intake. 2 ½ liters of water should be used before using

routine painkillers daily. He believed that dehydration causes activation of tissue's histamine; therefore, leading to pain and spasms.

There is clinical evidence that dehydration may cause gastrointestinal smooth muscle spasms including the pyloric valve and the sphincter of Oddi. A spasm of the sphincter of Oddi is one of the definite factors leading to pancreatic damage. It is known that dehydration and depletion of electrolytes will lead to muscle spasms and cramps. Normal muscle cells contractions require sufficient amounts of the water, sodium, potassium, calcium, magnesium, trace elements and glucose. Abnormal supplies of these substances can cause the muscle to become irritable and spasmodic.

Chronic consumption of alcohol causes chronic dehydration, deficiency of electrolytes and metabolic acidosis. Combining with the direct toxic action of alcohol on pancreatic tissue, it can explain the frequency of pancreatic attacks after alcohol indulgence.

Normally, people can obtain water and electrolytes only by drinking or eating. Water and minerals can be replaced only by water and minerals in ionic form. Our body does not produce them; thus, it needs water, minerals, and trace elements in constant supply

Interesting facts at a glance:

Water is vitally important for our lives

The importance of drinking adequate amounts of water and maintaining a well-hydrated state is one of the first principles of health

Humans obtain water by drinking simple water, healing mineral water and herbal tea, or receiving water from water-rich foods such as fresh vegetables, fruits, soups, blends, and juices

Drink eight, 8-ounce glasses of fluid daily - "8 x 8 rule"

Dehydration is all too common in the majority of persons with GI tract problems

Simple signs of dehydration include having a dry feeling in the mouth, dry lips, dry skin, hard stool, constipation, low energy, low endurance, weakness, negative thoughts and dark-colored, cloudy and pungent urine

The most common sign of dehydration of the pancreas and thickening of bile is abdominal cramping

Almost 9-10 liters of fluid and electrolytes moves through the digestive tract and approximately the same amount of fluid is reabsorbed into the blood every day. This cycle regulates water, electrolytes, acid – alkaline balance, micro- and macro-circulation and immune and hormonal function

Normally, people can only obtain water and electrolytes by drinking and eating. The body cannot produce water and electrolytes and needs a constant supply of them. Water loss can be aggravated not only by inadequate water intake, but also by excess soda, caffeine and water pills.

Besides rehydrating, eating fresh homemade vegetable soups has many health benefits, especially for digestive (pancreatic) health

Pancreatic juice is 97.6% water

The pancreas, much more than other organs, is particularly vulnerable to even the smallest changes in the blood-water balance; therefore, it is especially sensitive to any negative water balance or dehydration

Dehydration is an independent risk factor for pancreatic disease

Clinical practice supports the fact that water loss can cause acute and chronic pancreatic damages

For individuals with a medical background

There are no classifications of pancreatic diseases that may satisfy and unite all specialists. All classifications make sense and are getting practical if they help primary care physicians or medical practitioners to postpone the development of the final stage of the pancreatic (digestive) diseases, the conditions when medical approaches usually are narrowed, and possibilities for treatment are restricted.

Most chronic diseases and disorders, particularly gastrointestinal problems, have three stages of development: functional (reversible), structural (partially reversible), and final (nonreversible) stage. Taking this into account, *Biotherapy Functional Clinical Classification of Exocrine Pancreatic Disorders* subdivides all digestive disorders and diseases into three groups.

1. Acidic pancreas and bile

2. Pancreatic deficiency

3. Pancreatic failure

In everyday medical practice, the crowds of individuals with digestive symptoms consist of patients with the *acidic pancreas and bile* stage of exocrine pancreatic disorders. Their tests are usually normal, and most of these patients receive palliative symptomatic treatment. The authors consider and try to prove that the acidifying of alkaline digestive glands (pancreas and liver) decreases digestive capacity of pancreatic juice and bile.

Reader can obtain *Chapter 7-Biotherapy Functional Clinical Classification of Exocrine Pancreatic Disorders* from **Part 1** of the e-book **Healthy Pancreas, Healthy You** [here](#) or in the end of this book.

Chapter 30-Dietary Recommendations for the *Acidic Pancreas and Bile* Stage

For individuals lacking a medical background

At the beginning of the 20th century, the U.S. was ranked 1st in health among the major industrial nations. Currently, America spends more money than any other nation on health, but according to the most recent World Health Organization report, the United States ranks 24th in health with a life expectancy of 70.0 years out of 191 nations behind Japan, Australia, France, Sweden, Spain, and Italy. Besides the growth of other chronic diseases, most of the Americans suffer from some digestive disorders.

Let's look at the facts.

Digestive Diseases Statistics for the United States

All Digestive Diseases

Prevalence: 60 to 70 million people affected by all digestive diseases[1]

Ambulatory care visits: 104.7 million (2004)[2]

Hospitalizations: 13.5 million (2004)[2]

Mortality: 236,164 deaths (2004)[2]

Diagnostic and therapeutic inpatient procedures: 5.5 million—12% of all inpatient procedures (2006)[3]

Ambulatory surgical procedures: 20 million—31% of all ambulatory procedures (2006)[4]

Costs: \$141.8 billion (2004)[2]

\$97.8 billion direct medical costs (2004)[2]

\$44 billion indirect costs (e.g., disability and mortality) (2004)[2]

1. National Institutes of Health, U.S. Department of Health and Human Services. *Opportunities and Challenges in Digestive Diseases Research: Recommendations of the National Commission on Digestive Diseases*. Bethesda, MD: National Institutes of Health; 2009. NIH Publication 08–6514.

2. Everhart JE, ed. *The Burden of Digestive Diseases in the United States*. Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases, U.S. Dept of Health and Human Services; 2008. NIH Publication 09–6433.

3. DeFrances CJ, Lucas CA, Buie VC, Golosinskiy A. *2006 National Hospital Discharge Survey*. Hyattsville, MD: National Center for Health Statistics; 2008(5).

4. Cherry DK, Hing E, Woodwell DA, Rechsteiner EA. *National Ambulatory Medical Survey: 2006 Summary*. Hyattsville, MD: National Center for Health Statistics; 2008:(3).

Digestive diseases affect 70 million Americans. This is an official medical statistic of Americans seeking medical care at doctor offices and hospitals. However, this is only the tip of the iceberg.

This statistic doesn't include people without medical insurance, people that get alternative methods of treatment, or individuals that simply believe their symptoms as "normal" and hence don't seek medical help at all.

Camilleri, M. *et al.* (2005) [193] from the Mayo Clinic College of Medicine, Center for Enteric Neurosciences and Translational Epidemiological Research, Rochester, MN, USA published a study that examined the prevalence of upper gastrointestinal (GI) symptoms and symptom groupings and determined the impact of disability in a nationally representative U.S. sample.

In this study, more than 21,000 Americans were asked about having GI symptoms such as heartburn, nausea/vomiting, bloating, abdominal pain, and early satiety/loss of appetite.

The prevalence of an average of one or more upper GI symptoms during the past 3 months was **44.9%**. The study did not even address Americans that suffer from lower GI symptoms such as constipation/diarrhea, lower abdominal pain, hemorrhoids or IBS. No question that another 45% of the population may be affected.

What is occurring here? Neither a famine nor starvation caused these gastrointestinal problems, since America is the breadbasket of the world. Nor is the health emergency due to a lack of medication, sanitation or medical treatments, for the U.S. is the most medically technologically advanced nation on the face of the earth. The chief causes of this health crisis are poor and imbalanced diets.

The Western pattern diet, also called the Standard American Diet (SAD), has many imbalances. First, it contains high intakes of certain foods, such as red meat, "bad" fats, refined grains and sugary desserts and drinks. Second, this diet lacks necessary amounts of raw plants, such as vegetables and fruits. Third, there is a lack of vital nutrients in the food, such as vitamins, minerals and trace elements because the food is cooked and/or processed. Fourth, there is not enough "live" foods loaded with natural digestive enzymes. Fifth, the food products have hidden and obvious additives and toxins such as preservatives, sweeteners antibiotics and hormones.

It is not the goal of this book to discuss any political, economical, or medical policies. Nevertheless, it is obvious that the digestive health of Americans has worsened the last 60 years and this problem is not the matter of heredity or genetically caused changes of the digestive system. The consensus of many nutritional scientists is that the root of this problem is environmental, especially modified food consumption.

What differences in manufacturing, dispersing, storage, and consumption of the food have happened in the past 150 -200 years as compared to the modern Western diet? The main difference is that before, food had a high content of the natural food enzymes from vegetables, fruits, and animal products. Another difference is that food at that time had beneficial bacteria from lacto-fermented vegetables, fruits, beverages, dairy products, meat, and condiments.

In addition, the modern Western diet introduces many artificial, chemically and genetically modified food products, which are very difficult to digest.

150-200 Years Ago

People lived mostly in small towns, and many of them grew their own foods. They did not know what refined sugar, white flour, canned foods, toxic additives, artificial coloring, pasteurized, homogenized skim, or low fat milk and hydrogenated, refined vegetable oils were.

People consumed whole grains, vegetables, seasonal fruits, and some animal foods, such as fish, land and waterfowl, land and sea animals, eggs, whole milk, muscle meat and organ meats. Some animal foods such as eggs, milk, and some fishes were consumed raw. Their foods had almost equal amounts of omega-6 and omega-3 essential fatty acids. All foods at that time contained some unrefined salt. Most foods were prepared and eaten at home with the family, without a rush and without distraction.

Modern Western Diet Today

Commercially processed food such as cookies, crackers, TV dinners, soft drinks, ice cream, pizza, frozen foods, processed granola and breakfast cereals do not have natural digestive enzymes. Nowadays, diets contain a lot of refined sweeteners such as sugar, dextrose, glucose, high fructose corn syrup and processed fruit juices. White flour and white rice cannot supply modern populations with the required amount of the minerals, trace elements, vitamins and fibers.

Processed, pasteurized milk, low fat milk, skim milk, powdered milk and imitation milk products do not have the natural enzyme lipase for their digestion. Hydrogenated or partially hydrogenated fats and oils, refined vegetable oils and fried foods cause serious oxidative stress on human organisms. Processed, concentrated foods, factory-farmed chicken, meats and fish contain antibiotics, hormones additives, coloring and preservatives.

Canned, sprayed, waxed, irradiated and genetically modified fruits, vegetables and grains are totally different in comparison to what our ancestors ate. Coffee, chocolate, distilled liquors and artificial food additives (especially MSG) do not add any health benefits to current humans.

All dietary changes that are described above lead to serious biochemical changes, mainly to the collection of acidic radicals in the body – **metabolic acidosis**.

It is impossible to change the eating habits of millions of people. However, it is possible for many individuals with symptoms of the *acidic pancreas and bile* stage of decreased exocrine pancreatic function to pay attention to a healthy way to eat.

Digestive Health = Pancreas Health

In the *acidic pancreas and bile* stage, even small eating changes without exhausted fasting and tormenting foods' restrictions can recover pancreatic function and whole digestive health and may postpone any further pancreatic deterioration. If the whole body acidity is the cornerstone of

acidic pancreas and bile, it is wise to begin with an alkaline diet. More information can be found in the chapter *27 Alkalizing Diet for Pancreatic Health: In Balance with Nature*.

In the *acidic pancreas and bile* stage, many symptoms are vague and may only manifest in connection with consumption of heavy, fatty/protein/starchy/sugary mixed meals.

Symptoms of *acidic pancreas and bile* include abdominal cramps, gas, bloating, heartburn, belching, fullness, tendency to constipate or alternation between constipation and loose stools. Many people consider these signs as normal reactions and take over-the-counter medications to suppress these symptoms. Some of them visit primary care physicians and undergo countless tests that usually are normal. They also take medications for months or even years to relieve symptoms temporarily. Some patients receive the psychosomatic label and take psych drugs for years or, in the worst-case scenarios, undertake unnecessary operations.

Occasionally, the symptoms become worse, and these attacks bring people to hospitals. Afterward, they are discharged with vague diagnoses such as “food poisoning”, “stomach flu” and “reflux.” People continue unsuspectingly to spend their “acidic lifestyle.” They eat acid-forming, “dead” and toxic foods, eat irregularly and often overeat, are stressed, lead a sedentary lifestyle, drink much coffee and alcohol and smoke.

Acidic pancreas and bile stage is the first, functional and reversible stage of decreasing pancreatic function, when there are no serious structural damages. In reality, it is extremely difficult to determine the beginning of the pancreatic injury by standard medical tests and procedures.

Imaging and conventional blood tests usually do not reveal any abnormalities in the *acidic pancreas and bile* stage, so, the person does not believe that there is a real, serious life or health issue. Nevertheless, severe biochemical acidic changes in the pancreatic juice and bile continue to destroy the pancreas, liver, gallbladder, and the entire digestive system.

Simple checking of saliva and urine pH at home daily for a minimum of one week may point out the *acidic pancreas and bile* stage. At this moment, the acid – base indicator (litmus paper) is yellow and shows acidic changes in saliva and urine. It is understandable, that in metabolic acidosis, the organism tries to eliminate out acidic radicals through the body fluids such as saliva and urine.

Some holistic doctors or alternative medicine practitioners may use the *Comprehensive Stool Analysis*, hydrogen breath test, metabolic panel and liver panel, tests to verify the *acidic pancreas and bile* stage of decreasing of exocrine pancreatic function and its consequences.

Medical diagnosis may help to identify this stage as well.

Possible diseases and conditions associated with the *acidic pancreas and bile* stage include functional dyspepsia, biliary dyskinesia, GERD –Gastro Esophagus Reflux Disease, SOD - Sphincter of Oddi Dysfunction type III, IBS – Irritable Bowel Syndrome, Intestinal Dysbiosis (Candida-yeast overgrowth), and Metabolic Syndrome. These conditions are functional because

there is an abnormal function and there are some symptoms without real structural changes in the GI organs.

In the *acidic pancreas and bile* stage, a few very important dietary changes are required for restoring normal function of GI tract, including:

- * Increasing consumption of alkalizing foods
- * Increasing consumption of foods that contain living digestive enzymes
- * Decreasing consumption of acidifying foods
- * Eliminating the eating of processed, unnatural and toxic foods
- * Promoting appropriate combinations of foods

Eating for Pancreatic Health = Digestive Health

Many health tips may be found in this chapter. You don't have to follow any of the suggestions here, but you will feel health benefits if you decide to do so. The most influential concept to remember is to let your body be your guide. Everybody's digestive system is different and can handle different combinations. If your pancreas is strong and healthy, you can digest any kinds of foods without any unpleasant symptoms. Anybody who eats against the law of nature will be punished anyway.

a. What Should I Eat?

Unlimited Vegetables: Vegetables are recommended to be eaten raw, steamed, boiled or baked. Vegetable examples include alfalfa, asparagus, avocado, beets, broccoli, cabbage, carrots, cauliflower, celery, cucumber, eggplant, lettuce, peas, radishes, raw spinach, salad greens, sprouts, sweet peppers, tomatoes, zucchini, etc. The ideal way to consume unlimited vegetables is in their fresh, raw form or via soup. One salad should be eaten daily, and raw vegetables should be added to every meal. Fresh vegetables should be purchased seasonally (organic vegetables are recommended to avoid chemicals, antibiotics and pesticides). Storage and transport will decrease the amount of nutrients.

Preparation and cooking:

- Nutrient loss occurs when vegetables are exposed to heat, light and air; therefore, do not wash, chop or slice them until you are ready to eat them
- For everyone who does not like to prepare a large salad, it is much faster to make a fresh vegetable blend
- While vegetables should always be washed before consumption, long soaking is not recommended, as it can leach out water-soluble vitamins. You can quickly and thoroughly rinse vegetables under cold running water. Use a soft brush to remove dirt and sand

- When peeling and chopping vegetables, remember that many nutrients are concentrated just beneath the skin. If possible, do not peel the vegetables. Cook them in their skin and eat with the skin or peel after cooking
- Most vegetables should be steamed until they are barely tender or crisp-tender
- Long boiling destroys vitamin C and leaches other water-soluble vitamins into the cooking liquid. If you still prefer to boil vegetables, do so as soon as possible, using a small amount of water in a covered pan. Cook them whole or in large pieces
- Try not to fry vegetables, because high temperatures during frying destroy even good oils, causing carcinogenic effect
- Serve cooked vegetables quickly; their nutritional values will be higher

If you eat starchy vegetables (potatoes, sweet potatoes, corn, winter squash, cooked carrots and beets), steam or bake them in their skin and eat with the skin if possible.

Fruits are excellent sources of many vital antioxidant nutrients. Additionally, fruits contain healing powers. Fruits contain a fair amount of natural fruit sugar; therefore, it is ideal to limit their intake to no more than 4 servings of fresh, raw fruits or two, 8-ounce glasses of fresh fruit juice. Fruits should only be eaten alone on an empty stomach. Do not remove edible skin.

Only **whole grains** of oats, barley, brown rice, wheat, millet, quinoa, rye and buckwheat should be eaten. When producing white flour, the bran, outer layer and germ are removed. Many nutrients are eradicated when removing bran and germ from wheat including 50-97% of vitamins and minerals, 70% of fibers, 70% of essential fatty acids, and 25% of protein. Whole grains contain complex carbohydrates, dietary fiber, minerals, and B-vitamins. The protein content of whole grains is greater than that of refined grains. Wheat bran is a popular bulk laxative. ¼ cup of wheat bran per day is sufficient for this purpose. In addition to fiber, wheat bran also contains most B vitamins and about 20% of the total protein content of whole wheat. Rice bran, like oat bran, can help improve the carbohydrate and fat metabolism, thereby, helping to lower serum cholesterol levels.

Beans and Legumes are the most ideal plant sources for protein. In addition to protein, beans and legumes contain energy-giving complex carbohydrates, B vitamins, minerals, and dietary fibers.

Preparation and cooking:

- > Place the beans in a large pot and add enough water to cover them (2-3 times the beans' volume in water)
- > Soak them for at least 8 hours or overnight (longer soaking eliminates more of their gas producing sugars)
- > Drain the soaking water

> Place the beans in a strainer and rinse them under cold water. Add the required amount of fresh water and cook them until they are very soft

Nuts and Seeds have substantial reserves of protein: nuts derive 8-18% of their calories from protein and seeds take from 10-25% of their calories from protein. Almonds, walnuts, filberts, sunflower seeds, pumpkin seeds, flax seeds, and sesame seeds contain substantial amounts of calcium, potassium, magnesium, and iron. The oil that reaches kernels is one of the best vegetable sources of vitamin E and essential omega-3 fatty acids. Seeds (more than nuts) contain dietary fiber. Most nuts obtain between 70-97% of their calories from fat. Most fat in raw nuts is unsaturated. Highly nutritious raw almonds contain more calcium than any other nut, have the highest dietary fiber content and may have anticancer effects. For better digestion, soak all fresh seeds and nuts for at least 8 hours or overnight in plain water.

Other than nuts and seeds, most plant foods contain very little fat, but the **fats and oils** they do contain are essential to human health. The typical “bad” fat is an animal, saturated fat that is semisolid to solid at room temperature. Most vegetable fats are liquid at room temperature. The only exception to the rule is coconut oil that is solid in room temperature. Organic, cold pressed, virgin vegetable oils that contain lipase, organic, cold pressed and virgin coconut oil are all highly beneficial for digestive health. Eliminate the intake of margarine and other foods containing “trans” fatty acids and partially hydrogenated oils.

Fish is naturally rich in essential nutrients including selenium, iodine, protein, “good” fats and vitamins A and D (particularly in oily fish). Fish oil is rich in essential omega-3 fats (special fats that have beneficial effects on various body functions). Omega-3 fats may inhibit the clotting tendency of blood and reduce the risk of heart attacks, improve the blood fat, modify the production of hormones that control tissue growth and repair, reduce excessive inflammation and promote overall healing. It is recommended to eat a variety of wild, cold-water fish 3 times per week, including Alaska salmon, mackerel, herring, sardines, and trout. Farmed fish should be avoided.

Eggs are easily digested, and their protein is almost fully utilized by the human body. The egg white and yolk form a whole food and balance each other. The fats in the yolk assist in the assimilation of egg protein. Raw, organic eggs or soft-boiled eggs are extremely favorable for health.

b. What Foods Should Be Avoided or Eaten in Very Low Amounts?

Milk and Dairy Products are the most mucus forming foods in the human diet, and from infancy to senility, are the most insidious causes of colds, flu, bronchial troubles, asthma, hay fever, pneumonia and sinus problems. Many individuals have sensitivities to milk protein - casein or milk sugar – lactose, which causes a lot of GI problems. Butter does not contain casein

and lactose, so it can be used a few times a week as a source of fat. Exceptions include fermented, plain, organic milk yogurt or kefir with active, living bacteria that are a good source of probiotics and digestive enzymes. Goat milk, homemade goat cheese or goat yogurt are nutritious and produce less problems with digestion.

Because of its high protein content, **meat** acidifies the blood (much as sugar does), and acidified blood will leach calcium from the bones. An excess of meat quickly causes problems of accumulation of matter: clogged vessels and organs, putrefaction, infection and constipation. Processed meat is also high in “bad” saturated fats. A high –protein diet creates toxic by-products in the form of unused nitrogen. Excreting these can seriously overwork the kidneys, unless a large amount of water flushes out these toxic products.

Antibiotics and hormones in the feed of livestock are added to prevent infections and increase weight quickly and are passed on to the consumer. These antibiotics that are consumed by humans are associated with a decreased responsiveness to antibiotic therapy when it is medically necessary. Improper digestion then occurs, due to the reduction of beneficial intestinal bacteria.

For the past thirty years, natural and synthetic hormones have been used both in cattle and poultry to promote faster growth and more efficient assimilation of the nutrients in feed. Hormonal imbalances can be created by the introduction of hormones from the outside and can lead to such disorders as obesity, infertility, diabetes, kidney disease, hypertension, precocious puberty, male hormones in females, feminization of males and even cancer.

In addition to medications and additives the cows contain in their body tissues, many pesticides, herbicides, and other toxic substances are used in raising their feed crops. As these substances accumulate in high concentrations in cow’s fat, liver, and kidneys, obvious hazards are presented to the meat consumer, as well.

If you want to eat meat, follow these safety guidelines. First, try to buy only organic, grass fed meat, from animals that are free of antibiotics and hormones. Those caws‘ are free of potentially hazardous chemicals. Ideally, the animals (including poultry) will be free-ranch. Second, eat only lean red meat or skinless chicken. We are not the preachers for vegan diets. Humans need to eat animal products moderately.

Sugar is everywhere! Between 1970 and 2003, the annual U.S. per capita consumption of sugar and sweeteners increased 19%, from 119 pounds to 142 pounds. The natural, simple sugars in fruits have an advantage over sucrose (white sugar) and other refined sugars in that they contain a wide range of nutrients that aid in the utilization of the sugars. Refined carbohydrates are stripped of these nutrients. Nearly all of the natural vitamin content has been removed from white sugar, white bread, pastries and assorted breakfast cereals.

When high-sugar foods are eaten alone, the blood-sugar level rises rapidly, imposing a strain of blood-sugar controls. Too much of any simple sugar can be harmful – especially if you are hypoglycemic, diabetic or prone to Candida-yeast overgrowth. Sources of refined sugar should be limited very strictly. Read food labels carefully for clues on sugar content. If the words “sucrose, glucose, maltose, lactose, fructose, corn syrup, or white grape juices concentrate” appear on the label, extra sugar has been added.

Limit sugar consumption to not more than 5-6 grams of any kind of sugar per serving

Simple sugars have been observed to aggravate asthma, aggravate mood swings, provoke mental illness, nourish neurological disorders, promote diabetes, expedite heart disease, grow gallstones, hasten hypertension and cause arthritis. Because refined dietary sugars lack minerals and vitamins, they must draw upon the body's micronutrient stores in order to be metabolized into the system. Refined sugar is the most acidified food so it is extremely unhealthy for the pancreas.

Alcohol is an extremely toxic acidic substance for the pancreas and liver. Small amounts of wine are allowed. You have to listen to your body. Feeling “hungover” the next day tells you everything you have to know about alcohol. Alcohol is a main trigger of pancreatitis.

Processed foods in cans, bottles, packages and bags typically don't have any living digestive enzymes, because these enzymes in raw food are responsible for quick spoiling, rotting, and fermentation, which shorten the shelf life. A short shelf life leads to many problems; therefore, all food manufacturers attempt to remove living enzymes from food. For these purposes, preservation is utilized (and living enzymes are eliminated). Food preservation methods involve the use of heat, cooking, pasteurization, smoking, drying, spray drying, freeze drying, canning, preserving in syrup, sugar crystallization, food irradiation, adding chemical preservatives, or inert gases, pickling, salting and curing.

Processed foods, besides the lack of living digestive enzymes, contain different chemicals such as coloring, preservatives and additives that make those foods attractive, convenient to use, tasty and in some cases, cause dependencies and addictions to them.

Producers and consumers want convenience, low prices and food safety, which often require a lot of packaging. In addition, due to the long distances that packaged foods are shipped, the packaging must be durable and chemically stable enough to last thousands of miles. The front side of packaged foods is a marketing tool with occasionally misleading food labels.

It is imperative to read the *Nutrition Facts* label!

Customers usually are hooked on bright labels with attractive words “all natural”, “beneficial for health”, “doctor recommended” and “helps maintain the healthy heart” and don't read the *Nutrition Facts* label. Customer, be aware, if the *Nutrition Facts* labels contain words or

abbreviations, which are strange and are not easy understandable, it is very likely that the food in this package is chemically modified. It is not healthy for the pancreas either.

c. Food Combinations

Regarding pancreatic health it is clear that the regulated quality and quantity of foods nurture and promote normal pancreatic function. On the other hand, without normal pancreatic functioning, food cannot be properly digested, assimilated and eliminated. These are the main reasons for the developing of almost all digestive diseases.

For digestive (pancreatic) health, it is essential not just what we eat but also the food combinations. In the wild animal kingdom, there are no species that combine foods the manner in which people do. In nature nobody eat sandwiches, cottage cheese cake and meat and potato. No doubt that unnatural mixes of foods put a heavy strain on the human digestive systems because every kind of food requires a specific digestion, time, place, and digestive enzymes.

There are numerous books, websites and articles with different points of view on food combinations. We avoid debate on this topic and follow facts and background of clinics, where the diet is used as a main healing tool.

20,000 years ago, our ancestors did not have 24/7 supermarkets, refrigerators and international foods as we do today. Archeology research shows that there were strong and healthy people even taller than we are now with more sublime brain weight.

Yet the life span at that time was not long, and many of our ancestors died from infections, traumas and natural disasters. Those that did survive until old age didn't show signs of "diseases of aging" such as obesity, goiters, cancer, arteriosclerosis, chronic liver diseases and teeth decay.

Food scientists believe that the hunter-gatherer diet of our ancestors is most physiological for our digestive systems and pancreatic health. Genetically, our digestive system depends upon this kind of eating. If it is wrong, none of us could exist.

Hunter-gatherers obtained most food from gathering rather than hunting; up to 80% of the food was obtained by gathering. Their eating habits and food combinations depended upon seasons, hunting and gathering skills and residence. Evidence shows that widespread use of fire by our ancestors 60,000-40,000 years ago was mainly for heating and protection from predators rather than cooking. Only 50% of foods was cooked at that time. Most food was eaten in a raw, natural state. Obviously, our ancestors practiced separate diets. They ate only one type of food at a time, either plants or animals. They usually did not eat grains, milk, beans, and sugars. The digestive system of our ancestors adjusted to this diet functionally and genetically.

10,000 years ago, after the “agriculture revolution,” farmers began to grow grains and domestic animals. The food supply changed. People started eating a lot of wheat, rye, barely, rice, millet and dairy products together. There were new food products for digestive systems to adapt. Even after thousands of years of use, these products they still cause intolerance and sensitivities.

Today, many individuals cannot eat milk products due to lactose or casein intolerance or wheat due to sensitivity to gluten - celiac disease.

Approximately 200 years ago after the “industrial revolution,” new foods such as ice cream, chocolate, coffee, canned, and salty foods, cereals, white flour and rice, potato and hard liquors were introduced to the digestive systems. To extend the shelf life, food manufactures used all their skills and possibilities to destroy or remove living digestive enzymes from products. Through that time, doctors described nutritional deficiency diseases such as scurvy, rickets, beriberi, pellagra and kwashiorkor. Technology helped to produce relatively cheap sugar; therefore, sugars, because of their sweet taste, were placed in many food products, making them unnatural for our digestive system.

For the last 60 years, we have been witnesses of the “food revolution.” More and more individuals consumed the unnatural “dead” food without any living enzymes or acidifying foods. Cheap, packaged, processed, canned, frozen, precooked, easy to prepare and “pleasant tasting” foods that can be kept refrigerated replaced old-fashioned whole natural foods. Nevertheless, there was a price for this change. The price for food modification is the current global epidemic of functional digestive disease, which we call the *acidic pancreas and bile* stage of exocrine pancreatic deficiency.

If you're in doubt about whether a combination seems like a good idea, just think about the other animals in nature and how and what they eat. In nature, wild animals do not combine foods. You are unlikely to see animals eat salad, soup, a second course and desert at their dinner. Wild animals generally eat one thing at a time - a “mono-diet” - and there are significant benefits to eating this way. Different types of foods - proteins, starches and sugars, for example - all digest in different ways; therefore, when we combine different foods together, it can be difficult for digestion. Unfortunately, most of us learned to eat exactly this way - combining several different foods in one meal. What is most dangerous for our pancreas is the “dead” food without any natural digestive enzymes.

Following scientific and evidence based facts, the authors recommend little food combination principles. For our standpoint on pancreatic health, following these diet principles may enhance proper digestion, create a great health benefit and may avoid digestive issues, including gas, bloating, constipation, fermentation and Candida-yeast overgrowth. This can be a remarkably effective piece of the healing approach to almost all disorders of the GI tract. This may slow the progression of the “diseases of civilization” such as cardiovascular diseases, cancer, overweight issues, diabetes, and osteoporosis.

Another major advantage of proper food combining is that it helps conserve energy. Nutrient easily digested foods can be assimilated with less expenditure. By some estimates, we spend up to 80% of all of the energy we have on digesting our food.

The authors strongly believe that our digestive system is genetically used to consumption of 50-80% of raw, natural food with living digestive enzymes. We are not proponents of a strict vegan diet because we need animals' proteins and fats, as well.

Important food combining principles include vegetables (except potato) combining with many different foods. Fresh vegetables such as salads and fresh vegetable blends have many digestive enzymes that can help to digest other food products. Those vegetables must be chewed well or are drunk slowly as a blend.

Most common foods conditionally can be divided on five groups: Proteins, Starches, Vegetables, Oils and Fruits. Some examples are:

Group 1-Proteins: Meat, Fish, Poultry, Seeds, Dairy products, Beans, Eggs, Nuts, Goat Cheese

Group 2-Starches: Rice, Grains, Corn, Winter Squash, Potato

Group 3-Vegetables: Green vegetables, Summer Squash, Root vegetables

Group 4-Oils: cold pressed Vegetable Oils, Avocado, Coconut oil, Butter, Raw Egg Yolk

Group 5-Fruits: raw, organic fresh fruits, fresh prepared fruit juices, frozen, dry fruits

Simple advices with food combining may include:

Proteins (group 1) and **starches** (group 2) are not a healthy combination. That is why, meat and potato, or macaroni and cheese are not OK combinations. **Vegetables** (group 3) can be combined with proteins, starches, and oils. Eating salads, vegetable blends, or cooked vegetables either with chicken or with rice could be proper combinations. Good **oils** (group 4) can be added in reasonable amounts with the protein, starches, or vegetable groups. **Fruits** (group 5) are better eaten separately 2 hours before all 4-food groups. If you like a fruit dessert after a heavy dinner or yogurt mixed with fruits, do not be surprised at having gas, belching or flatulence.

The authors strongly recommend that individuals with weak pancreas and subsequently weak digestion, do not mix proteins foods, such as meat, chicken, fish and eggs with starches such as starchy vegetables (potato) or grains (pasta, bread).

You may argue that these “traditional” meals of protein with starches such as meat and potatoes, pepperoni pizza, chicken and pasta and fish and rice are eaten all around the world. Of course, those societies can't be “wrong” can they? There must be a reason why people eat like this. Well, there is, but it has little to do with nutrition; it is all about economics. Wheat, potato, and rice are

widely available and relatively cheap, so an average meal consisting of a mass of bread, pasta, or rice accompanied by meat or poultry provide plenty of calories for energy and filling of satiety. This is eating for less, but for the price of good digestive health.

How about fat or oils? Fat or oils are very controversial subjects for many Americans because of the wrong slogan “*No Fat, No Cholesterol*”. Unfortunately, this category includes many healthy lipids, which are rich in natural lipase such as butter, avocado, raw egg yolk, cold pressed virgin vegetable oils, raw seeds and nuts and fish oil. Following “*No Fat, No Cholesterol*”, people started eating artificial products such as processed oils, non-fat milk, non-fat sour cream, “trans fat” oils, and, of course, sugars. Without living lipase in natural fat products, our digestive system cannot absorb fat products, which, in turn, cause many gastrointestinal and metabolic problems.

Natural fat and oils can be combined with proteins, starches and fresh or cooked vegetables.

Fruits have to be eaten mostly in raw or frozen conditions on an empty stomach.

Desert lovers (ice cream, sweets, fruitcake, sweet juices, or simply fruits after meals) as usual, have digestive problems such as heartburn, gas, abdominal cramps, diarrhea and metabolic problems such as overweight issues, diabetes and gallbladder stones.

In today's hectic, fast-paced world, we are inundated with nutrient-lacking foods. Consumed mainly for convenience, processed and refined food products have led us to a decline in health and have raised medical costs. Having to consume more of them to “fill up”, due to their lack of usable nutrients, yet high sugar and “bad” calorie counts, we have become an obese, sick and energy depleted society.

Functional digestive diseases are a global epidemic now. Millions of Americans suffer from chronic dyspepsia, gastroesophageal reflux, Sphincter of Oddi Dysfunction, Irritable Bowel Syndrome and Candida-yeast overgrowth. All these disorders reflect decreasing exocrine pancreatic function, what we call *acidic pancreas and bile* to emphasize the origin of this problem. We are confident that nutritional scientists in the future will find more facts about this situation that certainly is the current “disease of civilization”.

Acidic pancreas and bile stage is a reversible condition. There are no effective actions to normalize this functional condition without properly correcting the body's acid – alkaline balance through the proper diet

This, in turn, requires the participation of the individual and changes in the “acidic” lifestyle and acidic foods. Sorry to say, but only a small number of individuals want to count on themselves. They look for alleviation of their symptoms, or they suffer in silence and believe that their condition is “normal.” They get hundreds of reasons to continue the “acidic” lifestyle.

There is an ancient Eastern proverb: “*Only stupid young men spend health for money and only stupid old men spend money for health. And only smart people take care of themselves from their youth until old age*”.

This book is dedicated to the smart people. Here, these people can find many simple ways for a healthier life by overcoming the *acidic pancreas and bile* stage and delay many troubles, pains, suffering and loss of money for future treatments.

Interesting facts at a glance:

Millions of Americans suffer from some digestive disorders

The chief causes of this health crisis are poor and imbalanced diets

The Western pattern diet, also called the Standard American Diet (SAD), has many imbalances. First, it contains high intakes of certain foods, such as red meat, “bad” fats, refined grains and sugary desserts and drinks

Second, this diet lacks necessary amounts of raw plants, such as vegetables and fruits

Third, there is a lack of vital nutrients in the food, such as vitamins, minerals and trace elements because the food is cooked and/or processed

Fourth, there is not enough “live” foods loaded with natural digestive enzymes

Fifth, the food products have hidden and obvious additives and toxins such as preservatives, antibiotics, and hormones

Digestive symptoms and simple checking of saliva and urine pH at home may point out the *acidic pancreas and bile* stage

In the *acidic pancreas and bile* stage, even small eating changes without exhausted fasting and tormenting foods’ restrictions can recover pancreatic function and entire digestive health and may delay any further pancreatic deterioration

For digestive (pancreatic) health it is important not just what we eat but also the food combinations

Unnatural mixes of foods place a serious strain on the human digestive systems because every kind of food requires a special digestion, time, place, and digestive enzymes

***Acidic pancreas and bile* stage is a reversible condition. There are no effective actions to normalize this functional condition without properly correcting the body’s acid – alkaline balance through the proper diet**

Chapter 31-Dietary Recommendations for the *Pancreatic Deficiency* Stage

For all readers

The *pancreatic deficiency* stage is a very common condition for most gastrointestinal disorders.

Diseases and disorders of the stomach, liver, gallbladder, small and large intestines and, certainly, the pancreas lead to poor exocrine pancreatic function causing pancreatic deficiency.

In the *pancreatic deficiency* stage, chronic functional and structural changes in the pancreas occur. These changes lead to the decrease of digestion due to low activity of pancreatic digestive enzymes. Low pancreatic function, in turn, causes many gastrointestinal symptoms such as pain, gas, bloating, belching, heartburn, constipation or diarrhea. Inflammation and destruction processes in the pancreas or surrounding tissues lead to spasms, cramps and attacks of epigastria pain.

Medical diagnosis may help to identify the *pancreatic deficiency* stage.

Possible diseases and conditions associated with *pancreatic deficiency* include clinical or subclinical episodes of acute pancreatitis, chronic pancreatitis, GERD, gastritis, gastric ulcers, duodenal ulcers, duodenitis, chronic hepatitis, Sphincter of Oddi Dysfunction type II or III, gallbladder disorders (inflammation, stones, sludge, parasites), conditions after gallbladder removal and some surgeries on the upper GI tract, considerable intestinal dysbiosis (Candida-yeast overgrowth, Small Intestine Bacterial Overgrowth), intestinal parasites, IBD (Crohn's Disease, Ulcerative Colitis), Celiac Diseases, Cystic Fibrosis (early stage), Diabetes, alcohol abuse and some acute and/or chronic poisoning.

It sounds strange to classify different kinds of digestive diseases into one group that we call *pancreatic deficiency*. However, in all the diseases mentioned above, exocrine pancreatic function diminishes. On the other hand, low pancreatic function aggravates all of these conditions; therefore, nutritional recommendations, which may improve pancreatic function, may positively change the symptoms and the entire course of these diseases. The pancreas is “the hostess of the gastrointestinal tract,” and a key player on the digestive team; therefore, the proper functioning of the entire GI tract requires proper pancreatic function.

As proper food is able to regulate and promote proper pancreatic function, a healthy diet can control the *pancreatic deficiency* stage and can help to reverse this condition into a stable remission.

The *pancreatic deficiency* diet guidelines can help to:

- Restore deficiencies of digestive enzymes, vital minerals, trace elements, essential amino acids, fatty acids, and vitamins
- Normalize the body's acid-alkaline balance
- Control indigestion and its warning signs such as gas, bloating, flatulence, nausea, vomiting, diarrhea, constipation, and indigestion

- Decrease pain, inflammation, and congestion
- Normalize the metabolism of carbohydrates, fats, and proteins
- Control Candida-yeast overgrowth and SIBO (Small Intestine Bacterial Overgrowth)
- Diminish the pressure inside pancreatic and bile ducts
- Normalize function of the Sphincter of Oddi (the valve between the common bile ducts and duodenum). All conditions, where there are difficulties with secretion or elimination of bile, can cause pancreatic fluids to back-up into the pancreatic duct, thus leading to congestion and inflammation of the pancreatic gland

For individuals lacking a medical background

Many people assume they know plenty about food and nutrition and think they eat “healthy.” They are reluctant to any eating changes and find hundreds of reasons to keep to their so-called normal eating patterns. Everybody is unique in his/her own digestion. Even for a person that does not have symptoms of indigestion but suffers from hormonal, neurological, cardiovascular, and immune disorders, a healing diet can be a powerful tool for health and longevity.

Some Permissible Food (Organic Preferred)

Proteins:

- > Lean fish (wild, fresh water/ocean caught)
- > Lean, non-stringy, nonfat, grass fed beef
- > Skinless free-range poultry
- > Eggs (raw or soft boiled)
- > A small amount of plain boiled tofu
- > A small amount of homemade goat cheese

Only cook fish, meat, and poultry in water, not broth, and grind or blend after cooking. Eat proteins a few times daily, particularly in the morning.

Oils:

- > Organic, cold pressed coconut oil
- > Raw coconut milk
- > Raw avocado
- > Cold-pressed extra virgin olive oil

- > Cold-pressed extra virgin flax seed oil
- > Avocado oil
- > Fish oil

Vegetables:

- > Steamed or boiled vegetables, mashed or blended after cooking
- > Raw vegetables blends and sprouts
- > Vegetable soups (may be blended)
- > Butter or olive oil may be added to vegetables

Preparation and cooking:

- When vegetables are exposed to heat, light, and air they lose vital nutrients. Do not wash, chop or slice vegetables until you are ready to eat them
- Vegetables must always be washed before they are eaten, but soaking them for a long time is not recommended because it leaches out water-soluble vitamins. Use cold, running water to quickly but thoroughly rinse vegetables and, if necessary, use a soft brush for removing any dirt or sand
- When peeling and chopping vegetables, remember that many nutrients are concentrated underneath the skin. Whenever possible, cook vegetables in their skin and either eat with the skin or peel them after the cooking is finished
- Long boiling destroys vitamin C and leaches other water-soluble vitamins into the cooking liquid. If you still prefer to boil vegetables, do so as quickly as possible, using a small amount of water in a covered pan. Cook them whole or in large pieces. Use this liquid to prepare soups
- Serve cooked vegetables promptly as their nutritional bases will be higher
- Blending the raw vegetables (liquid salads) is a great way to start eating a substantial amount of raw vegetables

Grains: > Boiled oatmeal and brown rice (overcooked, soft, and semiliquid)

- > Quinoa and buckwheat slow thermos cooked

Drinks:

- > Purified water
- > Karlovy Vary healing mineral water (4-6 cups daily)
- > Warm herbal teas (Rose Hips, Chamomile, Peppermint, St. John's Wort, Fennel, Licorice, green tea) can be sweetened with stevia
- > 10-12 glasses of purified water and teas combined daily

> No alcohol, coffee, sweet or carbonated drinks

Spices:

> Avoid raw garlic and onion, horseradish, mustard and hot peppers if they cause digestive symptoms

> Limit table salt

If in the past, an allowable food did not agree with you, do not include it in your diet!

Healthy Eating Rules:

* Eat small, frequent meals (5 -6 times daily)

* Relax while you are eating

* Choose organically grown food whenever possible

* Carry food with you

* Chew your food slowly and carefully at a minimum 20 - 30 times. By chewing food thoroughly, digestion can be enhanced. Do not swallow small, non-chewed pieces. Chew soft or liquid food to mix it with saliva

* Digestion requires more energy than any other bodily function. To save the energy needed for healing and cleansing the body, try to eat simply. Different foods have to be eaten alone or properly combined. At any meal, vegetables should be combined with only one other kind of food, such as meat, fish, or starches. If you continue to eat heavy, fatty/protein/starchy/ sugary mixed meals, your symptoms will never cease

You need to follow this diet for at least 3 months. After 3 months if your condition is stable, you can stop blending your food, but continue chewing very well.

This book it is not a “cookbook” but for simplicity we offer some food ideas to help get you started.

Menu Options:

- Boiled oatmeal (slow thermos cooked, semi-liquid)

- Boiled quinoa (slow thermos cooked, semi-liquid)

- Boiled buckwheat (slow thermos cooked, semi-liquid)

- Soft boiled eggs (boiled 1-2 minutes)

- Boiled meatballs (mix grounded lean meat, eggs and shredded zucchini)

- Boiled ground chicken (mix with shredded zucchini or carrots)

- Mashed cooked potato with butter or coconut oil
- Mashed cooked carrot and/or cauliflower
- Vegetable soup
- Vegetable soup with ground boiled meat
- Vegetable soup with ground boiled chicken
- Vegetable soup with ground boiled fish
- Vegetable, oatmeal, quinoa or buckwheat soup
- Vegetable soup with plain tofu
- Mashed pumpkin with coconut oil
- Mashed cauliflower with ground chicken or fish
- Liquid salad (blend of avocado, parsley, dill, cilantro, tomato, celery, “baby greens”, cucumber, coconut flakes)

Any changes to your diet must be taken slowly. You must listen to your body because digestive (pancreatic) problems are specific for everyone. Knowledgeable medical practitioners can customize a diet, nutritional supplementation and a healing program suited for your individual needs.

For people in the *pancreatic deficiency* stage, a healthy diet is probably the most significant factor in achieving and maintaining remission

Interesting facts at a glance:

***Pancreatic deficiency* stage is very common in many diseases and disorders of the stomach, liver, gallbladder, small and large intestines and, certainly, the pancreas**

In the *pancreatic deficiency* stage, chronic functional and structural changes in the pancreas lead to low exocrine pancreatic function

Low pancreatic function, in turn, causes many gastrointestinal symptoms such as pain, gas, bloating, belching, heartburn, constipation, diarrhea, spasms, cramps and attacks of epigastria pain

The healthy diet can control the *pancreatic deficiency* stage and can help to reverse this condition into a stable remission

a. Separation Diet

For individuals with a medical background

The more problems you have with digestion, the healthier it is to eat a “mono-diet” or “Separation Diet.” The Separation Diet suggests eating only one type of food at a time. The Separation Diet instructs for separate eating of products belonging to different food classes to solve digestive problems.

The Hay Diet is a nutrition method developed by New York physician William Howard Hay in the 1920s. After practicing medicine for 16 years, Dr. Hay developed some illnesses such as high-blood pressure, overweight issues, dilated heart and chronic kidney inflammation. Since there was no available treatment yet for his conditions at that time, this provoked Dr. Hay to develop treatments for his deteriorating health. Thus, he experimented on himself.

Dr. Hay began only eating natural foods and his condition improved. Almost a hundred years ago, he divided the foods on acid, alkaline and neutral effects. He suggested that different kinds of food in the gastrointestinal tract need different environments for proper digestion – acid for proteins and alkaline for sugar and starches. Dr. Hay created a system that prohibited the eating of starches and proteins during the same meal. His research included studying the work of Ivan Petrovich Pavlov, the Russian physiologist known for his research involving dogs. Pavlov’s studies of the digestion process of dogs indicated that it took about two hours to digest starches and four hours to digest proteins. However, it could require additional hours to digest a combination of protein and starch.

In accordance with Dr. Hay, the body uses an alkaline digestive process for carbohydrates, the group that Hay classified as consisting of starchy foods and sweet items. Dr. Hay advised to eat only whole grain and unprocessed starches. It was also advisable to provide at least a 4-hour interval for the next meal of another food group. The digestion of proteins involved acid. ; therefore, if carbohydrates and proteins were consumed at the same time, the acid process; interrupted the alkaline process. Combining incompatible foods caused acidosis, the accumulation of excess acid in body fluids. Dr. Hay linked the wrong combination of foods to medical conditions like Bright’s disease (chronic kidney inflammation) and diabetes. The wrong combinations “drained vitality” and caused individuals to gain weight.

Dr. Hay maintained that the solution was to eat proteins at one meal and carbohydrates at another meal. He classified fruits as acids. Hay labeled vegetables in the neutral group that could be consumed with either group. He also advocated the daily administration of an enema to cleanse the colon. In addition to writing diet books, Hay used the diet to treat many patients at a natural healing center.

The Separation Diet is not a panacea. However, according to the opinion of the authors, separate frequent eating may be recommended in the severe digestion disorders, including internal fermentation with gas and bloating, chronic pancreatitis, overweight issues, Metabolic Syndrome and gastrointestinal toxicity.

More information about food combining may be found in the previous chapter. If our food contains incompatible products “conflicting” with each other when digesting, the organism will try to eliminate this undigested material. There are only two openings in the gastrointestinal tract: mouth and anus. If undigested foods travel upwards, they cause nausea, vomiting, belching, heartburn, reflux, etc. If undigested foods move downwards, they lead to gas, bloating, cramps, flatulence, constipation, and/or diarrhea.

Irregular meals with unmixable combinations are unhealthy. This common modern way of eating deteriorates the pancreatic function, causes hypoglycemic and hyperglycemic reactions and pancreatic-bile refluxes, leading to the current epidemic of digestive disorders.

In all indigestion problems, the Separation Diet is an easy, safe, and effective way to start combating them.

Interesting facts at a glance:

The Separation Diet suggests eating only one type of food at one time

The Separation Diet instructs for separate eating of products belonging to different food classes to solve digestive problems

Different foods require different places in the gastrointestinal tract, different enzymes, particular environment for their actions, and special time for proper digestion

Food that contains incompatible products such as heavy, fatty/protein and starchy/ sugary mixed meals eventually leads to pancreas overwork and indigestion

Irregular meals with these unmixable combinations are also unhealthy

The common modern way of eating deteriorates the pancreatic function, causes hypoglycemic and hyperglycemic reactions and pancreatic-bile refluxes leading to the current epidemic of digestive disorders

In all indigestion problems, the Separation Diet and proper food combining is a simple, safe, and practical approach to begin combating them

b. Diet for Candida-yeast overgrowth and/or Small Intestine Bacterial Overgrowth (SIBO)

For individuals lacking a medical background

Special diseases and disorders that are accompanied by *pancreatic deficiency* need special nutritional recommendations ensued by particular conditions.

For example, Candida-yeast overgrowth and/or Small Intestine Bacterial Overgrowth (SIBO) usually either cause *pancreatic deficiency* or are a consequence of it.

Nutritional recommendations include the restriction of foods (for a minimum two months) that promote the growth of yeasts (sugar, white flour, white rice, sweets) and eating an abundant amount of foods that inhibit the growth of the yeasts.

Exclude the following:

- sweet fruits (bananas, figs, persimmons, sweet mangos, grapes, oranges, mandarins and all dried fruits)
- melons
- sugar and sugar containing foods, including honey, molasses and maple syrup, sugar substitutes
- bread, pastries, cookies, pasta, anything containing wheat
- yeasty food (rolls, bread)
- dairy products (milk, cheese)
- alcoholic beverages
- canned, bottled, packaged and processed foods, (usually containing refined sugar products and other hidden harmful ingredients)
- sauces and vinegar
- pickled and smoked meats and fish
- all types of mushrooms
- starchy vegetables (potatoes, sweet potatoes, sweet corn, winter squash, cooked carrots and beets) and white rice
- all fruit, carrot, frozen or preserved juices

Eat the following:

- unlimited vegetables (raw, steamed, boiled or baked): cabbage, alfalfa, asparagus, avocado, beets, broccoli, carrots, cauliflower, celery, cucumber, eggplant, sweet pepper, lettuce, peas, radishes, spinach, sprouts, salad greens, tomato, zucchini
- wild fish, free range organic skinless chicken and turkey, lean meat
- beans, legumes (one cup daily)
- raw seeds and nuts soaked overnight (except peanuts)
- plain yogurt with active living cultures of probiotics or homemade cottage cheese
- whole grains of oats, barley, millet, brown rice, quinoa, rye, buckwheat (no more than one cup per daily)
- cold pressed plant oils (olive, flax, coconut), avocado
- lemon or lime juice (to replace vinegar)
- freshly squeezed vegetable juice

- 1-2 servings of unsweetened fruits alone on empty stomach: apples, apricots, berries, grapefruit, lemon, papaya, peach, pear, pineapple, plums, and cherries
- raw garlic, ginger, onion, cayenne pepper
- 2 cups of ginger tea (start with ¼ of teaspoon of shredded ginger per cup of boiling water and increase to 1 teaspoon and 2 cups of strong peppermint tea). After 5 pm, drink 2 cups of chamomile tea.

Interesting facts at a glance:

Nutritional recommendations in the Candida-yeast overgrowth and/or Small Intestine Bacterial Overgrowth include restrictions of yeast promoting foods

Sugars, white flour, white rice, sweet fruits, and alcohol are good milieu for internal yeast fermentation

Enemy of my enemy is my friend, so eating an abundant amount of foods, which control yeast, such as food with “friendly” bacteria, is very beneficial

Canned, bottled, packaged, and processed foods contain refined sugar products, preservatives and other hidden harmful ingredients for friendly intestinal flora

Foods with natural friendly flora such as yogurt or kefir with living probiotics help inhibit the growth of yeast and parasites in the GI tract

Raw vegetables, non-sweet fruits, and whole grains promote the healthy balance between friendly intestinal flora and Candida-yeast

Some foods, spices, and herbs support digestive health by suppressing the growth of the yeasts

c. Fructose Malabsorption

For individuals with a medical background

Fructose malabsorption is a problem that few know about, despite affecting 30% of the population in the Western countries including the United States.

This condition is not genetic. It is connected with the modern diet. Fructose is a monosaccharide - a natural 6-carbon sugar found in nearly all fruits. Fructose is found in three main forms in foods:

1. **Free fructose** (fruits and honey)
2. **Sucrose** (a simple sugar that consists of glucose + fructose)

3. **Fructans** (a polymer of fructose usually present in some vegetables, wheat and in diet sweeteners in the form of *inulin*, *maltitol* and *sorbitol*)

There is no food in nature that contains too much fructose and usually, in real food, fructose combines with other natural sugars such as glucose. However, many sweet and artificial fructose products have been manufactured during the past 50 years. The most recognized is high-fructose corn syrup.

A single 12-ounce can of soda has as much as 13 teaspoons of sugar in the form of high fructose corn syrup. The amount of soda that Americans drink has more than doubled since 1970 to about 56 gallons per person a year. Naturally, the amount of fructose corn syrup we ingest has increased, as well. Additionally, more and more high fructose corn syrup has been added to regular foods, meaning that Americans consume a lot of "hidden" sugars.

For instance, "In 2001 people in the U.S., is consumed almost 63 pounds of high fructose corn syrup per capita" according to the U.S. Department of Agriculture. During the last decade, sugar consumption increased by at least 25 lbs/year. <http://www.usda.gov/factbook/chapter2.htm>

The source of sweetener has also changed from cane sugar (as sucrose, a disaccharide of glucose and fructose) to corn sweetener (sucrose and fructose). Thus, the average consumption of fructose has increased dramatically.

Failure completely to digest, and absorb fructose in the small intestine is called fructose malabsorption. Do not confuse fructose malabsorption with fructose intolerance. Hereditary fructose intolerance is a rare genetic disorder where the body lacks the enzyme for breaking down fructose.

Why does incompletely digested fructose in the GI tract, causes fructose malabsorption? Here, are some reasons to answer this question:

1. The digestive system cannot absorb an excessive amount of fructose; a healthy gastrointestinal system is designed to digest a small amount of natural fructose, no more than 25 – 50 grams
2. Low exocrine function of the pancreas decreases substances that promote absorption of fructose
3. Irritation or inflammation of the small intestine caused by gluten, casein sensitivity, lactose intolerance, and lectins
4. Leaky Gut Syndrome
5. Intestinal dysbiosis (Candida-yeast overgrowth, small intestinal bacterial overgrowth - SIBO)
6. Inflammation of the small intestine such as Crohn's disease
7. Damaged intestinal mucosa brought on by chemotherapy and radiotherapy

What happens to the non-digested fructose in the GI tract?

Fructose that is incompletely absorbed in the small intestine is transported together with water into the colon. Fructose retains the water inside the intestines. Then, intestinal bacteria quickly ferment the fructose, leading to the production of hydrogen, carbon dioxide, trace gases, organic acids and short-chain fatty acids. Distention and irritation of the intestines by the gases, water and toxic substances cause bloating, gas, abdominal cramps and constipation/diarrhea.

Experiments in which fructose are given to individuals with fructose malabsorption provoke gas, bloating, abdominal discomfort, nausea and disturbed bowel function. These symptoms are also very similar to irritable bowel syndrome (IBS). Individuals with IBS have these symptoms more often than their healthy counterparts.

How much fructose is too much?

Only 10% of subjects with symptoms of fructose malabsorption, can tolerate 25 grams or more of fructose. Many factors influence fructose digestion. For example, glucose can assist fructose absorption. Exercises can diminish fructose absorption. It is not wise for people to drink soda at the athletic club. Besides fructose, all processed food products contain other sugars such as fructans, sucrose, lactose, galactans, etc, that can have the same negative action on the GI tract as fructose does. The common sense is that fructose malabsorption requires restriction of fructose consumption.

Avoid any products that have more than 6 grams of sugar per serving

d. Low FODMAP Diet

For individuals with a medical background

The very interesting concept of a **low FODMAP diet** was studied by researchers Peter R. Gibson, MD and Susan J. Shepherd from the Department of Gastroenterology and Monash University Department of Medicine, Box Hill Hospital, Victoria, Australia.[261, 262]

This study utilized exemplary scientific standards and was published in several very prestigious medical journals, such as *J Gastroenterol Hepatol*, and *Lancet*, revealing the importance of a healing diet in the alleviation of gastrointestinal symptoms.

The acronym, “**FODMAP**” stands for **F**ermentable **O**ligo-, **D**i- and **M**ono-saccharides **A**nd **P**olyols - was coined to describe a group of short-chain carbohydrates and sugar alcohols (polyols). Using the products that contain these carbohydrates usually causes abdominal symptoms such as bloating, pain, nausea, and disturbed bowel habits (diarrhea and/or constipation) in many individuals, especially those with IBS.

FODMAP products consist of fructose, lactose, fructo- and galacto-oligosaccharides (fructans and galactans), and polyols (such as sorbitol, mannitol, xylitol and maltitol). A significant part of FODMAP is fructose, which is abundant in the sweet fruits, tinned fruit, high-fructose corn syrup, dried fruit, processed fruit juice and honey, etc. Lactose (milk), oligosaccharides such as cereals, wheat, rye (e.g. bread, pasta, couscous, crackers, biscuits) and legumes (chickpeas, lentils, red kidney beans and baked beans) are also a large part of FODMAP. Polyols are also known as sugar alcohols and can be found in artificial sweeteners as *sorbitol*, *mannitol*, *xylitol*, *maltitol*, *isomalt* and others ending in “-ol”.

According to the Australian researchers’ opinion, FODMAP food products are:

> *Poorly absorbed in the small intestine*: “Poor absorption occurs by virtue of slow, low-capacity transport mechanisms across the epithelium (fructose), reduced activity of brush border hydrolases (lactose), lack of hydrolases (fructans, galactans) or molecules being too large for simple diffusion (polyols)”.

> *Small and osmotically-active molecules*: “This effect has been demonstrated with, for example, a synthetic FODMAP, lactulose, which exerts a laxative effect when given in sufficient dose by increasing the liquidity of luminal contents and subsequently affecting gut motility”.

> *Rapidly fermented by bacteria*: “The chain length of the carbohydrate dictates the rapidity of fermentation by bacteria; oligosaccharides and sugars are very rapidly fermented compared with polysaccharides such as soluble dietary fiber”. [261]

Poor absorption of FODMAP can also depend upon a few other factors:

1. Diminishing of exocrine pancreatic function with low quality and improper amount of pancreatic digestive enzymes leads to indigestion
2. Leaky gut syndrome may irritate the gut wall and weaken the digestion and absorption carried out by the gut wall
3. Consumption of the FODMAP products is too high to be digested, especially if there is low pancreatic function
4. Low amount of lactase to digest lactose in milk or personal sensitivity to lectins (for example to gluten in the wheat) may occur genetically

If FODMAP products are not digested in the proximal section of the small intestine, they move to the ileum and colon and are fermented by intestinal flora. In case of dysbiosis, rapid fermentation can be also caused by Candida-yeast overgrowth or SIBO. Colon-gas production, particularly hydrogen, is greater in patients with IBS as was described by King, T.S. *et al.* (1998) in their article published in *the Lancet*, *Abnormal colonic fermentation in irritable bowel syndrome*. [263]

The small intestine and colon are expanded by gas and toxic indigested foods. This causes bloating, abdominal distention, cramps and constipation/diarrhea. By total restriction of

FODMAP in 6-8 weeks, Australian researchers diminished symptoms in about 75% of patients but had little benefits in some patients.

They concluded, “*after all, delivery of dietary FODMAP to the distal small and proximal large intestine is a normal phenomenon, one that will generate symptoms if the underlying bowel response is exaggerated or abnormal*”.[261]

The authors of this book consider that FODMAP sensitivity mostly combines with low pancreatic function, dysbiosis, and metabolic acidosis. Common foods that are part the FODMAP diet are acid-forming foods and are also good milieu for multiplying of Candida – yeast. Besides sugars, large components of the FODMAP diet such as grains (wheat, rye, oats and barley) cause allergies through gluten. Additionally, cow milk contains the allergenic casein, alpha-S1 casein, and beans and legumes contain toxic lectins.

Hence, food products that contain FODMAP must be eliminated from consumption for 6 – 8 weeks. These foods may then be slowly reintroduced one-by-one to verify the trouble causing foods in the *acidic pancreas and bile* stage.

In the *pancreatic insufficiency* stage, FODMAP products have to be eliminated for 3 - 6 months to improve the digestion and alleviate the gastrointestinal symptoms.

In *pancreatic failure*, FODMAP foods should be avoided completely.

Interesting facts at a glance:

One third of the populations of Western countries, including the United States, suffer from fructose malabsorption

Fructose malabsorption is not a genetic condition but it is connected with the modern diet

A large number of sweet, artificial fructose products have been manufactured during the past fifty years

The most notable fructose product is high-fructose corn syrup

The average consumption of fructose has dramatically increased the past few decades, and so has the prevalence of digestive disorders

The human body can digest no more than 25 – 50 grams of fructose

Unabsorbed fructose is quickly fermented, causing high amounts of gases and toxic substances that distend and irritate the GI tract

Bloating, gas, nausea, abdominal cramps and constipation/diarrhea are some of the symptoms of fructose malabsorption

Fructose malabsorption requires restriction of fructose consumption. Carefully read the *Nutrition Facts* labels at the back of the products. Avoid any products with more than 6 grams of sugar per serving

FODMAP are foods that include sugars and sugar alcohols

A significant component of FODMAP is fructose, which is found in abundant amounts in sweet fruits, tinned fruit, high-fructose corn syrup, dried fruit, processed fruit juice and honey

Lactose (milk), oligosaccharides such as cereals, wheat, rye (bread, pasta, couscous, crackers, biscuits) and legumes (chickpeas, lentils, red kidney beans, and baked beans) are also a large component of FODMAP

According to Australian researchers, FODMAP foods usually cause abdominal symptoms such as bloating, pain, nausea, and disturbed bowel habits (diarrhea and/or constipation) in many individuals, especially those with IBS

In the *acidic pancreas and bile* stage, food products that contain FODMAP must be eliminated from consumption for 6 – 8 weeks

In the *pancreatic deficiency* stage, FODMAP products have to be avoided for 3 - 6 months.

In the *pancreatic failure* stage, FODMAP should be avoided completely

e. Another Hidden Enemy for Digestive Health – Lectin

For individuals lacking a medical background

It may appear strange that the authors do not recommend cereals and low fat milk, which are part of the “healthy” breakfast of many Americans. Besides the fact that is an unhealthy combination of artificial, “dead” food without digestive enzymes, this is an incomplete food, lacking many essential nutrients.

Eating grain cereals in the morning with low fat milk and sugars (in the form of processed orange juice or sugary coffee) quickly raise the blood sugar because these foods are high in the glycemic index. A spike in blood glucose propitiates the pancreas to pump increased insulin to drop this blood sugar and in many cases decreases the blood sugar even lower than before. A few hours after this “healthy” breakfast, individuals may experience hypoglycemic attacks with huge cravings for sweets and carbohydrates the entire day.

So-called “healthy” food may be blamed for Metabolic Syndrome, obesity and diabetes. However, this is only part of the story. What is more, important is that millions of people are sensitive to grains and milk and suffer from gas, bloating, cramps, and diarrhea/constipation without any clue why this occurs.

Yet, there is another problem. There is a hidden enemy for the digestive tract that is not known very well by the public: lectins. Lectins are proteins that are found in high amounts in breads, cereals, pastas, beans (soybeans), peanuts, and some dairy products. Despite the fact that researchers discovered these substances near 100 years ago, attention to lectins only began

increasing worldwide the last 40 years because of their possible role in degenerative and autoimmune diseases.

Lectins, not to be confused with the endocrine hormone leptin, are proteins that are not digested by the stomach or pancreatic enzymes so they enter and irritate the small intestine.

The gut cells are barriers and locks that allow tiny molecules of the digested food to travel through the wall into the bloodstream and block the way for invaders (microorganisms) and incomplete digested food chunks. Lectins can damage the cells' locks, thereby allowing lectins and other nonvalid substances such as toxins, microorganisms or incompletely digested food particles to enter the bloodstream. This ability makes some scientists compare the lectins to the "Trojan Horse" in the GI tract.

After travelling into the blood system, lectins have another mysterious ability to bind to any cells and tissues in the human body. This process is called agglutination. For example, agglutination causes red blood cells or bacteria to stick together and form clumps. One of the lectins from castor beans with the name ricin is a poisonous substance that can cause sudden death due to massive agglutination of the human red blood cells and massive clotting. It may be one of the secret weapons in espionage.

But this is only part of the story about the harmful effect of lectins. Another, particular ability of lectins is that they can mimic human cells. Our immune system initiates attacking our own cells, confusing our cells from binding lectins. Everywhere in the skin, joints, intestines, brain and glands (including the pancreas), binding lectins lead to damage, inflammation, and autoimmune diseases. Lectins may trigger many autoimmune diseases such as Celiac Disease, Lupus, Psoriasis, Atopic Dermatitis, Rheumatoid Arthritis, Crohn's Disease, Ulcerative Colitis, Hashimoto's, Multiple Sclerosis and Sjogren's Disease.

There is evidence that lectins may play a negative role in diabetes, obesity, allergies, and IBS.

Lectins may be a classical example of how some foods can cause diseases

Where Can Lectins Be Located?

The most common potentially "toxic" lectins are contained in foods such as grains (especially wheat, oats, rye and barley), legumes (all dried beans, including soy and peanuts) and dairy products when cows are fed grains as a grass substitute.

Many people are aware about the lectin-actions of gluten. Some of the individuals suffer from milk intolerance and other become sick after eating beans. Soaking, sprouting, cooking, or fermenting may eliminate some harmful plant lectins. People in Asia know that raw soybeans may irritate the stomach, so they eat mostly fermented soy products such as tofu. To avoid gas, bloating and cramps from eating legumes and beans, they need to be soaked overnight, thoroughly rinsed and cooked for a long time in order to eliminate the lectins.

The lectin properties of gluten may cause gluten sensitivity or celiac disease that affects millions of people in the world, mainly Europeans and Americans. Consuming products that contain wheat, oats, rye and barley may lead to diarrhea, abdominal cramps and/or non-digestive symptoms such as fatigue, anemia and brain fog. There are many books, articles, and websites that recommend the nongluten diet for many gastrointestinal, neurological, autoimmune and hormonal diseases.

Pancreas and Lectines

Effects of food lectins on the pancreas have been intensively studied for years due to their possibility of causing inflammation, autoimmune diseases, permeable gut, and insulin suppression. In experimental models of acute pancreatitis, it was discovered that pancreatic juice proteins are structurally related to lectins.

Lectin antigen-antibody responses may be slow without symptoms for many years. Some provoking factors can exacerbate lectin toxicity such as lowering the immune system, viral, bacterial, yeast infections, some medications and, certainly, high exposure to foods that are high in lectins.

The authors consider that the first step in treating all gastrointestinal disorders is the elimination of any food that may contain harmful lectins. These foods are generally grains that contain gluten (breads, cereals, pasta, pizza, and cakes), cereals, and also nonfermented milk and soy products. In many cases, a nongluten diet diminishes the gastrointestinal symptoms. Reintroduction of suspicious food groups has to be very careful and slow.

In the *acidic pancreas and bile* stage, restriction of gluten products requires 6 weeks.

In the *pancreatic deficiency* stage, restriction of gluten products requires 3 -6 months.

In the *pancreatic failure* stage, total restriction of gluten products is required. Gluten containing products have to be used very cautiously.

Old doctors knew that ***“One man's meat is another man's poison”***.

Nowadays, it is common to think that we can eat any food we want. We can purchase foods we eat that do not get along with us. Why? Because, while the human digestive system has not changed during the last millennia, foods have changed.

Our ancestors had a very limited selection of food. They had limited exposure to various food lectins. Grains, beans, and milk were introduced to Europeans about 10,000 years ago, and potatoes, tomatoes and corn were introduced to the United States just a few hundred years ago. For thousands of years soy and rice were the primary diet in Asia. The digestive system of former hunters, fishers, and gatherers cannot easily adapt to the globalization of food production

and distribution. No wonder, millions of people in the world suffer from digestive disorders caused by lectins; foreigners for their digestive system.

Completely avoiding lectins is almost impossible; therefore, the authors try to choose foods with small amounts of harmful lectins. For example, buckwheat and quinoa are not grains. So, by eating them there is much less risk for consuming toxic lectins.

Interesting facts at a glance:

Grains, beans and milk contain toxic proteins known as lectins

A large number of individuals cannot digest lectins

Undigested lectins enter the small intestine, irritate intestinal walls and make them porous for microorganisms and large particles of undigested food. This is called Leaky Gut Syndrome

Lectins enter the blood through the porous gut wall

When toxic lectins travel into the blood, they attach to the cells of the different organs and mimic the human cells

The immune system confuses our cells from binding lectins and begins attacking its own cells. As a result, lectins may trigger many autoimmune diseases, allergies and food sensitivities

The most common potentially toxic lectins can be found in grains (wheat, oats, rye, barley), legumes (all dried beans, including soy and peanuts) and in dairy products when cows are fed grain as a substitute for grass

Millions of people in the world suffer from sensitivity to one kind of lectin – gluten. This condition is called Celiac Disease

Sensitivity to lectins also triggers many digestive disorders

Lectins may play a negative role in developing pancreatic disorders by causing inflammation, autoimmune disease and insulin suppression

The first step in treating all gastrointestinal disorders is eliminating any food that may contain harmful lectins

f. Multiple Foods Sensitivity, Intolerance, and Food Allergies

For individuals lacking a medical background

Multiple Foods Sensitivity, Intolerance, and Food Allergies usually either cause *pancreatic deficiency* or are a consequence of it.

Deficiencies of the digestive pancreatic enzymes due to pancreatic disorders lead to indigestion. For example, lipase deficiency or changes in the bile quality can cause intolerance of fatty foods. On the other hand, many people do not have enough lactase – the enzyme that helps to digest lactose (milk sugar). Consumption of milk and some milk products can cause diarrhea, gas and abdominal cramps (common symptoms of lactose intolerance).

The common reasons for food sensitivity or food intolerance are usually hidden or are obvious allergies to gluten (wheat, oat, barley, rye) or to cow milk (casein). Cow milk and grains were introduced in the human diet some 10,000 years ago and the digestive systems of modern humans could not genetically and functionally adapt to those “newcomers.” While our genes have not changed, our foods have altered significantly.

Some foods contain toxic lectins. They are proteins, which cannot be digested so they pass into the small intestine, irritate the gut wall and make it porous. Indigested food particles, lectins and various microorganisms, yeast and parasites travel through the porous gut into the blood system and create a ton of extra work for the immune system.

Multiple food sensitivities, intolerance, and food allergies exhaust the immune system and make the body vulnerable to various infections. Overworking the immune system leads to enormous allergic reactions typically from the skin, lung and gastrointestinal tract. When lectins from foods penetrate through the gut wall into the blood, they attach to the human cells of different organs and systems. Attacking lectins, the immune system confuses the lectins with normal cells and attacks them. This action triggers many autoimmune diseases.

Low amounts of digestive, pancreatic enzymes seriously aggravate all allergic reactions. Clinical evidence supports pancreatic enzyme replacement therapy as a highly effective tool in normalizing immune responses. Unfortunately, the pancreas by itself may be victim to either low immunity or autoimmune disorders.

The main organ of the immune system, the GI tract, vitally depends upon the proper amount of intestinal friendly flora. When friendly intestinal flora is eliminated, Candida-yeast and other parasites take over the gastrointestinal tract causing irritation and leaky gut syndrome. Furthermore, Candida manufactures many toxic, allergic substances, which lead to multiple allergies.

Low pancreatic function, low friendly intestinal flora, overgrowth of Candida-yeast and other unfriendly microorganisms and whole body acidity aggravate many multiple food sensitivities, intolerance and food allergies

Treatment of food sensitivities, intolerance and food allergies is extremely complicated and needs to focus simultaneously on three factors:

1. Eliminating triggering foods
2. Normalizing digestion in the gut
3. Stabilizing the immune response and body's functions

The first and most critical step is the avoidance of trigger foods by using an **Elimination Diet**.

g. Elimination Diet

Elimination Diet focuses on avoiding the triggering foods, which cause food sensitivities, intolerance and food allergies. Triggering foods behave like the sparks that ignite flame of the immune reactions in the body.

Triggering Food => Health of the Intestinal Walls => Immune system and Body's function

The Elimination Diet is the traditional tool for verifying what type of foods cause the symptoms. Triggering foods do not only produce the symptoms of the GI tract but also practically cause the symptoms that distress almost all of the body's organs and systems. Symptoms may include fatigue, headaches, sinusitis, muscle pain, skin rushes and multiple chronic infections.

In almost all cases of digestive disorders or diseases, it is wise to avoid completely cow milk, wheat, oat, barley, and rye for 6 weeks as a self-experiment to see the results: less abdominal cramps, gas, heartburn, diarrhea or constipation and improved well-being.

“I cannot live without bread, or ice cream, or soda, or chocolate, or something else...” The authors often hear these phrases when helping individuals with food intolerances. And this may be a key to suspect a triggering food.

Often the foods that are causing a person's multiple foods sensitivities, intolerance, and food allergies are the exact foods that a person craves or is addicted to

Basically, in the United States:

> 3 out of 4 people suffer from lactose intolerance (cow milk). Milk is added to many products

> 1 out of 3 people suffer from sensitivity to yeast or fructose. Sugar, sodas, processed fruit juices, sweets, and citrus fruits can trigger these sensitivities. Sugar is everywhere!

> 1 out of 6 people suffer from sensitivity to gluten (wheat, oat, rye, barley). Countless favorite foods such as bread, pasta, pizza, cereals, pretzels, cookies, muffins and even sausages contain gluten

> 1 out of 30 people suffer from an allergy to some food products. The allergy can be anything from chocolate and peanut butter to soy

Identifying trigger foods can involve complicated tests and anyway there are people who are “sensitive to almost everything” and feel fairly well. Contrary, some people notice they react to many foods, but the tests do not verify it. It is the opinion of the authors that medical priority has to be given to a person’s symptoms and well-being. The Elimination Diet is a practical tool; your body knows better what is forbidden and what food can continue to be consumed.

First of all, you will need a diary where you will record food products that you eat. Be sure to mention snacks or meals you eat at work or at restaurants.

Second, you have to create your own chart where you will record how intensive your symptoms are from a scale of 1 to 3 (0 meaning no symptoms and 3 being the maximum of the symptoms).

Example of Record of Symptoms of Patients with IBS or Dyspepsia on the Elimination Diet

March 1 Gas, Bloating (3), BM (Diarrhea,/2 a day), Cramps (3), Heartburn (2), Nausea (2), Insomnia (3), Fatigue (3)

March 2 Gas, Bloating (3), BM (Diarrhea,/2 times), Cramps (3), Heartburn (2), Nausea (1), Insomnia (2), Fatigue (3)

After healing program:

March 22 Gas, Bloating (1), BM (N/1 a day), Cramps (1), Heartburn (1), Nausea (0), Insomnia (1), Fatigue (2)

Example of Record of Symptoms of Patient with Crohn’s Disease on the Elimination Diet

March 1- Bowel (5), Description of BM (liquid), Blood in stool (2), Mucous in stool (3), Urgency (3), Cramps (2), Energy (0)

March 1- Bowel (3), Description of BM (diarrhea), Blood in stool (2), Mucous in stool (3), Urgency(3), Cramps (3), Energy (0)

After healing program:

March 21- Bowel (2), Description of BM (formed), Blood in stool (0), Mucous in stool (1), Urgency (1), Cramps (0), Energy (2)

March 29- Bowel (2), Description of BM (formed), Blood in stool (0), Mucous in stool (0), Urgency (1), Cramps (0), Energy (2)

Example of Food Journal with Two Days Bad Examples of Foods, and Improper Food Combinations for the Person with Digestive Disorder

March 1 - Breakfast: cereal, fruits, non-fat milk, orange juice, toast, coffee

March 1 - Lunch: chicken sandwich, French fries, soda

March 1 - Dinner: pepperoni pizza, ice cream, fruits, beer

March 1- Snack: coffee, muffin, yogurt, peanuts, soda, chips

March 2 - Breakfast: cheese, wheat toast, milk, sugar, coffee

March 2 - Lunch: fish and chips, white rice, bread, soda, fruit juice

March 2 - Dinner: soup, shrimp, steak, fried potato, white bread, wine

March 2- Snack: coffee, croissant, cookies, chips, chocolate, soda, non fat yogurt with fruits

Example of Food Journal with Good Examples of Foods and Proper Food Combinations for the Person with Digestive Disorder

March 23 - Breakfast: raw vegetable blend, 2 soft boiled eggs, green tea

March 23 - Lunch: slow thermos cooked quinoa, avocado, tea

March 23 - Dinner: grilled salmon, raw vegetable salad, herbal tea with stevia

March 23- Snack: hot cocoa with stevia and coconut milk, one apple, almonds, berries

It takes just a few minutes in the evening to complete the day's records. You and your health care practitioner can easily estimate the progress and effectiveness of your healing program.

Most common symptoms of multiple food sensitivities, intolerance and food allergies are:

Gastrointestinal: abdominal discomfort, bloating, constipation, vomiting, diarrhea, heartburn

Skin: puffy eyelids, rushes, hives, lips swelling, dry, scaly, itchy skin

Nose, throat & bronchi: runny or stuffy nose, wheezing, sneezing, persistent dry cough

Well-being: anxiety, irritability, fatigue, migraines, pain in the muscles or joints, low appetite, sugar craving, low mood, sleep

Elimination Diet: Remove all foods that you most suspect especially dairy products, wheat (bread, pasta, and pizza), soy, peanuts, sweets, and citrus fruits, shellfish, sugar substitutes and food additives. The anti-Candida-yeast diet that was described above is most suitable for many cases. Cheating usually confuses results so it will be difficult to understand, which foods cause the symptoms. Do not blame yourself for cheating, simply focus on your health and move on to pursue the Elimination Diet.

Everybody is afraid of the word: "Forever"; therefore, the **Elimination Diet** requires only 6 weeks, and then you carefully will switch to the **Discovery Diet**. During that time, you introduce one kind of suspicious food weekly and record this in your diary to pay attention on changes of your symptoms. Many people react on the initiating of the triggering foods. Your body will

signal that it does not like this food anymore. Listen to the signals because your body knows best. Discuss the results with your health care practitioner.

For people that suffer from multiple food sensitivities, intolerance and food allergies, eliminating triggering foods will improve both your health and life

Believing, willing, patience, persistence, and self-discipline are requirements for this diet. Food can be addictive; therefore, during the Elimination Diet there may be withdrawal symptoms, die-off reactions and some cravings. That is why, the Elimination Diet needs supervision from a knowledgeable medical practitioner.

Interesting facts at a glance:

Lactose intolerance, sensitivity to yeast, fructose, gluten and other lectins, and artificial ingredients in foods are primary reasons for food sensitivities, intolerance and allergies

Low pancreatic function, low friendly intestinal flora, overgrowth of Candida-yeast and other unfriendly microorganisms and whole body acidity aggravate many multiple food sensitivities, intolerance and food allergies

For these conditions, eliminating triggering foods, normalizing digestion in the stomach, and stabilizing the immune response and body's functions are the main treatments

Often the foods that are causing a person's multiple foods sensitivities, intolerance, or food allergies are the exact foods that a person craves or is addicted to

The Elimination Diet is the traditional tool for verifying what type of foods cause the symptoms

The Elimination Diet requires a diary where eaten foods and symptoms intensity are recorded

The Elimination Diet requires only 6 weeks for all foods such as dairy products, wheat (bread, pasta, and pizza), soy, peanuts, sweets, and citrus fruits, shellfish and food additives to be removed

After this time, only one type of suspicious food is introduced on a weekly basis. Changes of symptoms can discover the triggering food

h. Diet for Gastro-Esophageal Reflux Disease (GERD)

Certain foods can worsen heartburn symptoms; therefore, it is best to limit or completely avoid foods and drinks that result in acid reflux.

The most triggering foods are:

**Fatty meats and deep-fried foods (barbeque, French fries)*

** Processed citrus, orange juice*

** Chocolate*

** Garlic, cooked onions, spicy foods*

** Coffee and caffeinated drinks*

** Peppermint*

** Alcohol*

** Processed tomato products (salsa, ketchup)*

** Sodas (caffeine and carbonation)*

Exclude the following:

- sweet fruits (figs, persimmons, sweet mangos, grapes, oranges, mandarins and all dried fruits)
- sugar and sugar containing foods including honey, molasses and maple syrup
- sugar substitutes, except stevia
- bread, pastries, cookies, pasta, anything containing wheat
- dairy products: milk, cheese, (except plain low fat yogurt with active probiotics)
- alcoholic beverages
- canned, bottled, packaged and processed foods
- sauces, spicy foods
- pickled and smoked meats and fish

Eat the following:

- Unlimited vegetables (best blended raw but steamed, soups, boiled or baked are acceptable): alfalfa, avocado, beets, broccoli, carrots, cauliflower, celery, cucumber, sweet pepper, lettuce, green peas, radishes, spinach, sprouts, salad greens, pumpkin, zucchini
- Wild fish, skinless chicken and turkey, lean meat, eggs (soft boiled)
- Raw seeds and nuts (except peanuts) soaked at night in water
- Whole grains of oat, barley, millet, brown rice, quinoa, buckwheat
- Cold pressed plant oils (olive, flax, coconut)
- Drink only freshly squeezed vegetable juice. Avoid all fruits, carrot, frozen or preserved juices
- Eat 5-7 small portions daily
- If you want to be healthy, feel great and stay in your best physical shape, eat as much “live food” as possible, meaning raw, blended food that has not undergone temperature treatments.

- Chew your food slowly and thoroughly. Try not to swallow even small, unchewed pieces
- Different foods have to be properly combined. At any meal, vegetables (except starches) should be combined with only one other type of food, such as meat, fish, poultry, etc
- There should be 30-45 minutes between meals consisting of fruits. After meals that do not include meat, there should be a break of no less than 3 hours before the next meal. After meals containing meat, one should not eat again for 4 hours
- Eat dinner early so the food travels out of your stomach before bedtime
- Do not lie down immediately after eating
- Drink at least 8-10 glasses of liquids, including healing mineral, distilled, spring or purified water daily

Simple Recipes during Attacks of Heartburn:

Vigorously chew 1 tablespoon of pine nuts or raw sunflower seeds, and then sip 1-2 cups of warm, healing mineral water prepared with Genuine Karlovy Vary Spring Salt or

Drink one teaspoon of unpasteurized, certified organic apple cider vinegar in 8 ounces of water before meals or

Drink 1 -2 cups of strong chamomile tea after meals

Choose what it works better for you.

More information can be found in chapter 45-Healing Program for *Acidic Pancreas and Bile Stage*

Interesting facts at a glance:

Certain foods can worsen heartburn symptoms; therefore, it is best to limit or avoid them completely

The Elimination Diet may relieve heartburn

The Discovery Diet may verify suspicious trigger foods

Sugar, sweets, white flour, milk and processed foods cause fermentation with gas and bloating and worsen heartburn symptoms

Suppressing stomach acidity may have temporarily relief

Chronic heartburn is a symptom of improper digestion; therefore, healing actions require focusing on the root of the problem

i. Diet for Metabolic Syndrome, Overweight Issues & Diabetes

Metabolic Syndrome, overweight issues, diabetes, and fatty liver usually are accompanied by *pancreatic deficiency* and fatty pancreas. An alkaline healing diet that decreases insulin resistance and promotes weight loss usually assists in normalizing the proper pancreatic function. On the other hand, it is almost impossible to lose weight if the digestion (pancreatic function) is poor.

For individuals lacking a medical background

Only uneducated and lazy people do not realize that the current epidemics of obesity and diabetes in the U.S. are caused by sedentary lifestyles, stress, and modern diets.

It is impossible to blame genetics here because genes have been not significantly changed in the past 50 years. Heredity may be implicated only as a “hereditary lifestyle,” when generation by generation populations used the same poor eating habits. Grandparents taught children how to eat, and those individuals, in turn, taught their kids to eat in the same unhealthy manner, as well.

No question that manufacturing, preparing, preserving, dispersing and consumption of food have totally changed in the last 50 years; therefore, obesity and diabetes have increased. Scientists and doctors published numerous articles raising the alarm that obesity, diabetes, cancer, and cardiovascular diseases arise in epidemic proportions the last few decades and have connected this epidemic with modern foods.

The authors consider two main reasons why modern food products cause people to become large and sick: a deficiency of essential nutrients in the modern foods and a large amount of the harmful substances in it. Modern food is lacking in the digestive enzymes, vital minerals, trace elements, vitamins, essential fatty acids, fibers, and beneficial bacteria. On the other hand, this food is full of new, chemically and genetically modified substances with either toxic or unknown actions on human health. Alcohol, smoking, drugs and overmedication also increase the toxic burden to the human organisms. This leads to many individuals becoming overweight while simultaneously having malnutrition and inner toxicity. The pancreas suffers the most. The modern diet or Standard American Diet (SAD) negatively influences the work of pancreas.

It is difficult and almost impossible to change peoples’ eating habits, so the information in this book focuses on individuals that want to be healthy or those who have health problems and look for natural methods to improve their conditions, especially the health of their pancreas.

Nevertheless, this requires a long-term commitment, insistence, persistence and believes in the end result. The reward will be health – the most significant value of life.

A proper diet can restore the damages, delay and possibly reverse many metabolic disorders and diseases such as Metabolic Syndrome, obesity and diabetes

The goals of diet are to decrease the amount of collected fat in the liver, pancreas and “belly fat,” to increase the sensitivity of cells to insulin and to improve the fat and carbohydrate metabolism. What to eat is as important as when to eat and how to eat.

The main ideas are:

- > Not to be hungry. Hunger is your worst enemy because it is a symptom of hypoglycemia (low blood sugar level) and activates the craving for sugar. When you feel hungry, first drink 1-2 cups of water to help reduce the feeling
- > Follow the Hypoglycemic Diet. This diet is extremely healthy. It is high in complex carbohydrates, “good” fats and proteins (foods with low glycemic index) and temporarily eliminates sugar, sweets, dairy products, starches and wheat (foods with high glycemic index and empty calories). Proteins, vegetable oils, and fresh vegetables without carbohydrates are highly recommended
- > Eat one thing at a time. At each meal, eat only one type of food alone or with vegetables. Salads and vegetables are low in “bad” calories and take up space in the stomach. Enzymes in fresh vegetables aid digestion of other foods as well
- > With every meal, try to eat fresh vegetables as a salad or a blend
- > Eat often - almost every 3-4 hours of mostly “good” proteins, fat, and vegetables

Additional advice:

- > If you want to be healthy, feel great and be at your best physical shape, eat as many “live foods” as possible (raw foods that have not undergone high temperature treatments)
- > Chew your food slowly and thoroughly at a minimum of 20-30 times each piece. Try not to swallow even small, non-chewed pieces. Chew soft or liquid food to mix it with saliva
- > Properly combine your foods. At any meal, vegetables (except starches) can be combined with only one other type of food, such as meat, fish, poultry, eggs, goat cheese, etc
- > There should be a gap of one hour after meals consisting of low- sweet fruits
- > We recommend obtaining 2 stainless thermoses with wide lids to keep your hot or cold foods in proximity. For example, this may include hot quinoa or buckwheat kasha, vegetable soup, or cold nonsweet fruit cocktails or shrimp salad. We additionally recommend obtaining 2 blenders, a large blender for home usage and a small blender outside of home (work, school, etc.)
- > Drink a glass of warm water with juice of ½ or whole lemon daily and/or 1 teaspoon of apple cider vinegar
- > Drink at least 8-10 glasses of liquid, including herbal tea and healing mineral, distilled, spring, or purified water

Exclude the following:

- Sugar and sugar containing foods, including sodas, molasses and maple syrup
- Sweet fruits (bananas, figs, persimmons, sweet mangos, grapes, oranges, mandarins, melons and all dried fruits)
- Bread, pasta, pastries, cookies, anything containing wheat
- Dairy products (except plain yogurt with active, living cultures or cottage cheese)
- Alcoholic beverages
- Bottled, packaged and processed foods as they do not contain digestive enzymes, but contain refined sugar and other hidden ingredients
- Exclude products containing more than 5 grams of sugar per serving
- Fried or smoked meats and fish
- Starchy vegetables (potatoes, sweet potatoes, sweet corn, winter squash) and white rice
- Frozen or preserved juice
- Sugar substitutes except stevia

Eat or drink the following:

- A. Vegetables (best raw, but, vegetable blends, soups, steamed or cooked are acceptable), fish, poultry, lean meats, eggs, beans, legumes, raw seeds and nuts (except peanuts)
- B. Whole grains of oats, barley, millet, brown rice, buckwheat and quinoa (no more than one cup of grain per day)
- C. Freshly squeezed vegetable juice or 2-4 cups of the fresh vegetable blend
- D. 2- 3 daily servings of unsweetened fruits or berries alone on an empty stomach
- E. Raw garlic, cayenne, turmeric, onions and ginger
- F. One cup of ginger tea (start with ¼ of teaspoon, and gradually increase to 1 teaspoon shredded ginger per cup of boiling water) and 2 cups of strong peppermint tea. After 5 pm, drink 1 - 2 cups of chamomile tea
- G. Stevia, and honeycomb as sweeteners
- H. Cold pressed, extra virgin olive oil for raw and cooked food, flax seed oil, walnut oil, sesame seed, cold pressed are good for salads and extra virgin coconut oil for cooking

Physiologically speaking, the theory of calorie counting is not always practical. The human organism is not a car, where more gasoline means more drivable miles. This theory does not put in account the energy that the body spends on digesting, splitting and assimilating different kinds of food products and the speed of the digestion of foods in the system. 150 calories from sugar is not equal to 150 calories from complex carbohydrates, protein or oil; therefore, the authors use the terms “good calories” and “bad calories” for simplicity.

Good calories come from natural, nonprocessed or less processed foods with a full amount of vitamins, minerals, essential fatty acids and fibers. They slowly and easily travel to the system.

Contrary, bad calories come from artificial, dead (without living digestive enzymes) food that is also lacking in the vital nutrients. These calories are empty, fast digested, acid forming, and force a huge workload on the metabolic system. The body converts these empty, bad calories into unhealthy fat that collects inside the internal organs and vessels.

Not all calories are created equal. Study from the Harvard-affiliated Children's Hospital in Boston and published in June, 2012 in the *Journal of the American Medical Association* suggests that low-fat eaters burned fewer calories, were more likely to regain lost weight.

<http://www.webmd.com/diet/news/20120626/all-calories-not-created-equal-study-suggests?page=2>

“No fat, no cholesterol” slogan leads to the exact opposite result because it pushes people to eat more carbohydrates. There are many populations on Earth where animal or fish fats and plants oils are major components of the everyday diet. Native Eskimos eat vast amounts of fat from fish and sea animals and yet they have extremely low rates of heart disease.

Numerous studies have indicated that a Mediterranean diet rich in olive oil helps prevent heart disease and even cancer. The Maasai tribe in Africa lives on animal blood, fresh raw milk and meat. They have no heart disease on this fat diet. What is common in all these paradoxes is that people eat fats with large amounts of the natural digestive enzymes.

Biochemists know “fats burn in the flames of carbohydrate”. Without carbohydrate (starches, sugars) in the diet, fat is metabolized slowly and incompetently. Varieties of low-carbohydrate diets practically prove this fact. Eating fat, does not equate to a large body; however, eating fat with sugars and starches does.

Farmers that produce pigs for bacon or fatback never feed them with proteins and fats. They know the carbohydrates (grains, corn) are the key to producing larger and fattier pigs.

Published by Andrew Pollack in *New York Times* on February 19, 2011 article *Today's Lab Rats of Obesity: Furry Couch Potatoes* is related to monkeys' experimental animal model of obesity that scientists study in US. How can food cause obesity and accompanying diseases such as diabetes? http://www.nytimes.com/2011/02/20/health/20monkey.html?_r=1&pagewanted=print

Dr. Grove and researchers at some other centers say the high-fructose corn syrup appears to accelerate the development of obesity and diabetes.

“It wasn't until we added those carbs that we got all those other changes, including those changes in body fat”, said Anthony G. Comuzzie, who helped create an obese baboon colony at the Southwest National Primate Research Center in San Antonio.

Barbara C. Hansen of the University of South Florida said calories, but not high fat, were important. *“To suggest that humans and monkeys get fat because of a high-fat diet is not a good suggestion”* she said.

Many answers about metabolic syndrome are in the lecture about sugar and obesity given by pediatric endocrinologist from San Francisco Robert Lustig, MD that hit YouTube at July 30, 2009. <http://www.youtube.com/watch?v=dBnniua6-oM>

Metabolic Syndrome, fatty liver, obesity, diabetes – the “diseases of civilization” kill millions of people in the world. Losing weight in these conditions is not a luxury, it is vital to keep people alive. Scientists and doctors know that the pancreatic hormone insulin is a key player in developing these diseases. Insulin is responsible for proper metabolism of not only carbohydrates but also proteins and fats. Insulin is a “storage hormone.” Excess insulin moves the metabolic pathway to the economical regime so that all carbohydrates are metabolized in the fat, especially in belly fat.

There are two main reasons why the pancreas is pushed to overwork and produce a lot of insulin:

1. People eat too many artificial foods, mainly sugars and starches that easy travel into the blood system making sparks of blood glucose
2. High blood glucose causes the pancreas to pump insulin into the blood to metabolize this glucose for energy. If we do not move, glucose transforms into storage fat. The more glucose travels into the blood, the more insulin the pancreas produces and the more fat is collected in the body

Too much insulin in the blood eventually leads to body cells becoming resistant to this hormone causing insulin resistance syndrome. Too often, this powerful hormone causes chaos in the whole metabolism leading to obesity, diabetes, high fat in the blood and blood vessel contractions.

Modern acidifying foods cause the shift from the normal slightly alkaline balance to a more acidic state. Acidity makes body cells are even more resistant to insulin.

On the other hand, several factors (many have been discussed in this book) reduce production of the pancreatic enzymes. The pancreas is an enzyme factory in our body. Low exocrine pancreatic function also leads to indigestion and metabolic disorders as well: for example, low lipase in the body usually combines with high cholesterol, high triglycerides, difficulty losing weight, and diabetes.

Food is the major trigger of the normal pancreatic function. To calm down the pancreas to produce a lot of insulin, the level of the blood glucose has to be more or less stable. Hunger and cravings are the first symptoms of low glucose; therefore, healing of most metabolic disorders

has to begin with stabilizing blood glucose levels by eating small portions of healthy food every 3-4 hours and drinking plenty of water.

Insistence, persistence, patience, and believing in positive results are highly influential.

“No hunger, no craving, lose weight, gain health!”

Biotherapy Food Pyramid for Metabolic Syndrome, Obesity and Diabetes:

- **Dairy** (1 - 2 servings): 1-2 cups of plain milk yogurt or kefir with live probiotics
- **Oils** (4 servings): oils should provide 24g or 6 teaspoons of the cold pressed, virgin plants oil, coconut oil, or fish oil, or avocado
- **Proteins** (3-4 servings): each protein serving should contain 2 ounces cooked meat, or fish, or poultry, 1 egg or 1/3 cup of nuts, seeds, or 2 ounces of homemade goat cheese
- **Whole Grains** (2-3 servings): one serving is 2 cups of cooked kasha, or quinoa, brown rice, or 1 slice of whole rye bread, or 1/2 cup of oat bran
- **Beans and Legumes** (2-3 servings): one serving is 1/2 cup cooked dry beans
- **Non-sweet fruits** (2-3 servings): one serving of fruits: 1 medium piece of fresh non-sweet fruit or 1 cup of fresh berries or 1 cup (8 oz.) fresh diluted fruit juice
- **Vegetables** (5 - 7 servings): Practically, fresh or cooked nonstarchy vegetables can be eaten without any restrictions

Foods to Avoid for Metabolic Syndrome, Obesity and Diabetes:

Beverages: Alcohol, Decaffeinated coffee, Colas, Cocoa with sugar, Soft drinks, Diet soft drinks. Coffee

Fruits: Dried fruits, Fruits canned in syrup, Grapes, Bananas, Oranges

Grains: White flour in any forms (whole grains other than wheat flour may be used), Cold cereals (except those very high in fiber), Crackers (white), Grits, Rolls, White rice, White, wheat bread, Dry, sweetened cereal, Matzo, Pancakes/waffles, Pizza, Pretzels, Bagels, Cakes

Meats: Cold cuts, Hot dogs, Salami, Canned meats, Sausage, Bacon

Desserts: Sweet Chocolate, Cake, Desert topping, Cookies, Custard, Ice Cream, Pie, Pudding, Jell-O, Pastry

Sweets: Caramel, Chewing gum, Candy, Artificial sweeteners, Malt, Processed Honey, Jam/jelly, Molasses, Sugar (refined, corn, beet), Marmalade, Maple syrup

Other forms of sugar: barley malt, beet sugar, brown sugar, buttered syrup, cane sugar, cane-juice, date sugar, dextran, dextrose, fructose, fruit juice concentrate, glucose, grape sugar, hexitol, high-fructose corn syrup, invert sugar, malt syrup, maltodextrin, maltose, molasses, raw sugar, splenda, lactose, sucralose, sucrose, sugar

Vegetables: Corn chips, Potato chips, Sweet pickles, Sweet relishes, French fries

Allowable Foods:

Beverages: purified water, healing mineral water, herbal teas, clear broth, freshly squeezed diluted vegetable juices, fruit juices such as apple juice, carrot juice, loganberry juice, pineapple juice, raspberry juice, lemon juice, Lime juice (dilute all fruit juices, 2 parts spring water to 1 part juice)

Vegetables: vegetable blends(fresh and organic), artichokes, asparagus, avocado, beans (green or wax), beets, onions (green or raw), parsley, peas (green or edible pod), water chestnuts, peppers, pimentos, radishes, rutabaga, garlic, salad greens, sauerkraut, spinach, lettuce, mushrooms, olives, cauliflower, celery, zucchini, cucumbers, tomatoes, cabbage

Fats: olive oil (any cold pressed, non-processed vegetable oil), flax seed oil, fish oil, coconut oil, avocado

Fruit (fresh and organic): apples, apricots, avocado, blueberries, strawberries, pears, pineapple, plums, raspberries, rhubarb (no sugar added), cherries, coconut fruit salad (without grapes), grapefruit, lemon, lime

Nuts and Seeds: almonds, pumpkin seeds, Brazil nuts, sesame seeds, walnuts, sunflower seeds

Proteins: skinless chicken and fowl, cottage cheese, fish, meat (grass-fed, unprocessed, lean), shellfish, beans, lentils, raw or soft boiled eggs

Sprouts (any kinds)

Whole Grains: amaranth, millet, sorghum, oats, oat bran, barley, quinoa, rice (brown or wild), rye, buckwheat

For simplicity, foods that are recommended for people with **Metabolic Syndrome, Obesity, Diabetes, and Fatty Liver** can be divided into three groups: *friend*, *foe* and *murderer*.

Friends may help, *foes* are not for consumption and *murderers* destroy the health.

Vegetables

Friend: fresh, organic (blends, juices, salads), cooked and steamed, vegetable soups

Foe: canned, processed, sweetened, processed juices

Murderer: fried (French fries)

Fruits

Friend: fresh, organic berries, 1 cup fresh diluted with water juices, unsweetened

Foe: sweet fruits, dry fruits, sweet fruit juices

Murderer: canned, sweetened processed, cooked, baked fruits, sugar sweetened, processed juices

Grains

Friend: quinoa, buckwheat (slow thermos cooked), millet, brown rice, sprouted grains, wheatgrass juice

Foe: white flour bread, pasta, cereals, white rice

Murderer: grain + fat + sugar products, sweet bakery (pastries, cookies, cake)

Legumes

Friend: fresh cooked, organic soy milk (no sugar added), fermented soy

Foe: canned, sweetened, processed

Murderer: fried

Proteins

Friend: organic eggs (raw, soft-boiled), lean chicken, turkey, fatty fish, homemade goat cheese, sprouted or raw nuts and seeds

Murderer: processed meat, fried, smoked, fatty meat, barbeque

Oils

Friend: unprocessed, cold pressed, extra virgin olive oil, flax seed oil, coconut oils, avocado

Murderer: fat + sugar products, processed, refined vegetable oils, “trans fat”, margarine, deep fried

Dairy

Friend: raw milk, fermented milk (yogurt, kefir) with living probiotic cultures, goat fermented milk and homemade cheese

Foe: processed, pasteurized milk and milk products, non-fat milk products

Murderer: milk + sugar products, ice cream, sweet chocolate

Miscellaneous

Friend: oat bran, Karlovy Vary Healing Mineral Water, green tea, herbal tea, cinnamon, stevia, Apple Cider Vinegar

Murderer: sugar more than 5g per serving, sodas, soft drinks, alcoholic beverages, high fructose corn syrup, artificial sweeteners

Examples of Good Calorie Snacks

You can eat some snacks with a bowl of vegetables. Need some ideas? To get you started on the road to good snacking, here are some suggestions:

1. 15 almonds, soaked overnight in the water
2. 2 ounces of lean roast beef with raw vegetables
3. Half a small avocado with tomato and seaweed
4. 3 ounces cooked whole-grain, brown rice noodles with 1 fresh tomato
5. 2 whole rice crackers
6. ½ cup or 3 ounces of cottage cheese, mixed raw vegetables with olive oil, garlic, lemon juice dressing
7. 1 tablespoons of sour cream
8. 1 tablespoon raw almond butter
9. 6-8 ounces of plain yogurt with living probiotics cultures
10. 5-ounce tossed salad with lettuce, tomatoes and cucumbers with olive oil and lemon juice
11. 3 ounces of canned anchovies or sardines
12. 5 fresh apricots
13. ⅓ of fresh avocado or 3 tablespoons of guacamole dip
14. 4 ounces of beans and chili or ½ cup of cooked beans
15. 3 ounces lean beefsteak or beef entrée with ¾ cup of cooked vegetables
16. Boiled beet with 1 tablespoon of sour cream
17. 1 cup fresh organic blueberries, cherries, raspberries or strawberries
18. 1 apple, pear, pomegranate, papaya or ⅓ pineapple
19. Cucumber, tomato, lettuce, greens, spinach, onion or papaya salad
20. Cooked ⅔ cup of brown rice
21. 3 ounces of sardines in water
22. 4 ounces of tuna or salmon canned in water
23. 4 ounces of shrimp cocktail
24. 1 tablespoon of sesame paste with vegetables (“Tahini”)
25. 5 Brazil Nuts
26. 1 teaspoon of butter with vegetables
27. 3 ounces of chicken breast without skin
28. 1 egg, soft boiled or raw
29. 3 ounces of fish

30. Fish soup
31. ½ cup of chickpeas or garbanzos
32. 1 teaspoon of honeycomb (rarely)
33. ⅔ cup cooked lentils
34. 10 pickled olives (rarely)
35. 9 ounces of vegetable soup
36. 8 ounces of unsweetened soymilk
37. 4 ounces of tofu with vegetables
38. 1 cup of baked or boiled pumpkin
39. 1 tablespoon of organic, raw, hulled and overnight soaked pumpkin, sunflower, flax or sesame seeds
40. 10 halves of raw and shelled walnuts
41. 2 eggs sunny side up with finely chopped onion, sweet peppers and parsley
42. Whole oatmeal with cinnamon and stevia or other spices
43. Buckwheat or kasha slowly thermos cooked with olive oil or butter
44. Quinoa slowly thermos cooked with oil or butter
45. Plain yogurt
46. Spinach salad (spinach, green onion, dill, pine nuts)
47. Green salad (baby greens, dark green lettuce, cucumber, tomato, avocado, onion) with broiled chicken breast
48. Tricolor salad (arugula, endive, radicchio) with shrimp
49. Mediterranean salad (tomato, cucumber, onion, dill, olives, feta and hard boiled eggs)
50. Avocado salad (tomato, avocado, onion, basil) with baked fish
51. Avocado and papaya salad with sheep or goat feta cheese
52. Green salad (vegetables of your choice) with rye bread (no wheat, no yeast)
53. Green salad with cooked beans (Lima, red, etc.)
54. Green salad topped with nuts or seeds
55. Vegetable soup
56. Seaweed soup with tofu
57. Brown rice with onion, ginger and broccoli
58. Brown rice with onion, garlic, sweet pepper and parsley
59. Quinoa with ginger and green beans
60. Eggplant with onion, sweet pepper and sour cream

61. Cauliflower and broccoli with ginger and tofu
62. Zucchini with garlic and Lima beans
63. Stuffed peppers with onion, cilantro and brown rice
64. Stuffed zucchini with onion, parsley and quinoa
65. Unsweetened coconut milk
66. 3 ounces of cooked meat (organic, grass-fed)

This is just idea, food for thoughts.

Kasha may be cooked in a 1-liter thermos. Fill the thermos with $\frac{1}{4}$ of quinoa, buckwheat or oats, add boiled water, close the thermos, and shake well. Enjoy it in 4 hours. For extra taste, you can add either Liquid Aminos, seaweed, coconut oil, olive oil or Stevia.

Eating Out

- Order a salad and use olive oil and lemon as a side dressing
- Eat soup, preferably vegetable soup without potatoes
- For an entrée, order chicken breast, skinless chicken, fish, or shrimp with vegetables
- Do not order breads or desserts
- Drink green tea, chamomile tea or coffee, or jelly without sugar

j. Diet for Fatty Liver and Pancreas

A new study has found fatty liver disease in nearly one third of American adults in a large urban population sample. It is known that the epidemic of Metabolic Syndrome and diabetes in the U.S. goes parallel to the prevalence of the fatty liver. Both Metabolic Syndrome and fatty liver have the same origin. Unfortunately, since the Standard American Diet is high in bad calories, fats, sugars and alcohol with unknown amounts of toxins, almost everybody has liver malfunction to some extent.

People believe that fat in food causes liver fat; therefore, people eat plenty of carbohydrates such as white bread, white rice and sugar, which are the real causes of fatty liver. The liver is an extremely important organ for carbohydrate metabolism. Through metabolic process, proteins, fats, starches and sugars are metabolized into glucose, the primary fuel for all cells in the body. Excess of the glucose is collected in the liver as a human starch – glycogen. If we need more fuel for muscle or brain cell activity, the body converts glycogen into glucose. Fatty liver does not have glycogen so glucose collects in the blood leading to diabetes.

As we described before, if too much glucose accumulates in the blood, the pancreas releases insulin. After some amount of glycogen is deposited in the liver, extra glucose is converted into the body fat for “rainy days.” Fat is deposited also into the liver, causing fatty liver. Fat in the liver destroys the liver cells and our wonderful chemical plant cannot work properly. Fatty liver usually combines with fatty pancreas.

The incorrect propaganda about fat scares people, causing them to avoid eat fatty products, which are natural regulators of releasing the bile. Congested bile leads to inflammation and gallbladder stones. In the worst-case scenario, liver cirrhosis develops and the liver completely shuts down. Similar to the liver, fat is deposited in the pancreas as well.

Liver, pancreas, and gallbladder diseases and poor digestion (low pancreatic function) typically occur together.

Some advice for fatty liver and pancreas:

- > Eat mostly domestic organic foods to avoid further liver toxicity
- > Eliminate alcohol totally from the diet, because alcohol speeds the pancreas and liver destruction and eliminates the opportunity to regenerate healthy new cells
- > Try to eat unprocessed raw vegetables containing minerals, vitamins, trace elements and enzymes with each meal
- > Contrary to popular belief, the liver, gallbladder, and pancreas require large amounts of plant and fish oils. Unprocessed, cold squeezed organic olive oil, flax seed oil, raw avocado, coconut oil, cod liver oil, and raw egg yolk are good stimulators of bile elimination and are significant suppliers of essential fat-soluble vitamins. Opposite of this, the liver, gallbladder, and pancreas do not like processed animal fats, grilled animal products, margarines, “trans fat” or any fried food.
- > Do not overeat because regular overeating greatly increases the workload of the liver and pancreas
- > Eat large amounts of fermented food with natural probiotics because friendly intestinal flora decreases intestinal toxic loads (less toxins travel into the liver)
- > Drink large amounts of fluids such as purified water, Karlovy Vary Healing Mineral Water, fresh vegetable juices and herbal teas

k. Diet for Gallbladder Diseases

The goals of this diet include:

1. Promoting bile alkalinity
2. Increasing bile liquidity

3. Promoting the production of liquid bile
4. Helping to eliminate bile
5. Dissolving gallbladder stones

The key concepts are:

- * Eliminating alcohol, sugar and white flour from the diet completely
- * Eating only organic food and avoiding chemicals, sweeteners, colorings, preservatives and “trans fats”
- * Drinking 8-10 daily cups of liquid such as purified water, Karlovy Vary Healing Mineral Water, fresh vegetable blends, juices and herbal teas (1 cup of coffee per day is allowed)
- * Eating raw vegetables with every meal
- * Not frying any food
- * Not overeating and avoiding heavy, fatty/protein and starchy/sugary mixed meals or crash diets for losing weight
- * Eating food that helps dissolve gallbladder stones (50% of raw foods including whole raw organic eggs, apples, pears, beets, squash, pumpkin, chicken liver, fish, avocado, olive and coconut oils, blended vegetable liquid salads, lecithin, chamomile and rose hips tea)

For healing gallbladder stone disease, it is essential to combine Karlovy Vary Healing Mineral Water, herbs, nutritional supplements, acupuncture, gentle abdominal massage and exercises and colon hydrotherapy with the diet.

Mostly, these recommendations also apply after gallbladder removal.

More information can be found in chapter 45-Healing Program for *Acidic Pancreas and Bile Stage*

I. Diet for Chronic Pancreatitis

Chronic pancreatitis typically combines with liver and gallbladder disorders. In general, a person with chronic pancreatitis has a history of taking antibiotics, painkillers, stomach acid decreasing agents and corticosteroids. Some individuals with chronic pancreatitis are alcohol and/or smoking addicts with poor eating habits. Almost everyone with chronic pancreatitis has Candida-yeast overgrowth or SIBO, experiences multiple food sensitivities, intolerance and food allergies; therefore, it becomes difficult to distinguish the root cause from the consequence and vice versa.

Everybody has unique history, condition and symptoms. However, the largest obstacle to recovery is usually the patient him/herself. Changes in eating habits are hard for everyone; therefore, it is important to be supervised by a knowledgeable health care practitioner, who can customize a diet to include:

- Anti-Candida Diet

- Alkaline Diet
- Separation Diet
- Elimination/Discovery Diet
- Metabolic Syndrome Diet

For people with Chronic Pancreatitis, the diet is probably the most significant factor in achieving and maintaining remission

The *pancreatic deficiency* stage is a condition of continuous debilitation. Using the healing diet can lead to remission, prevent future exacerbation and improve the quality of life. This requires insistent and persistent efforts and a strong belief in the positive result.

“The first and greatest victory is to conquer yourself”.

“Necessity is the mother of invention”.

Plato, Greek Philosopher

Interesting facts at a glance:

The epidemic prevalence of Metabolic Syndrome, obesity, diabetes, cancer and cardiovascular diseases in the U.S. is caused by a sedentary lifestyle, stress, and present diet

The growth of these diseases the past few decades accompany digestive disorders

The current food products may be blamed for these disorders, especially for their deficiencies of essential nutrients, acidifying properties, and a number of harmful substances

The “*No fat, no cholesterol*” slogan pushes people to eat more carbohydrates instead of fats, and avoid natural fat products and oils

Sugars and starches in the modern diet lead to high blood glucose and subsequently increased insulin production by the pancreas

Excess insulin in the blood eventually leads to body cells becoming resistant to insulin, causing insulin resistance syndrome

Excess insulin in the blood causes chaos for the whole metabolism (Metabolic Syndrome) leading to obesity, diabetes, hypertension, fatty liver and pancreas, cardiovascular diseases and possibly cancer

Modern acidifying foods cause the shift from the healthy, slightly alkaline balance to an acidic state. Acidity makes cells even more resistant to insulin and decreases exocrine pancreatic function

Therapeutic measures in Metabolic Syndrome have to go in two directions: first, normalizing pancreatic functions and second, increasing cells sensitivity to insulin

Individuals must eat frequent, small portions of the natural, alkaline-forming foods and drink plenty of water

The proper diet can fix the damages, delay and possibly reverse many metabolic disorders and diseases such as Metabolic Syndrome, obesity, diabetes, fatty liver and fatty pancreas

One third of Americans has fatty liver and fatty pancreas and most do not even know about it

Excess blood glucose from eating sugary and starchy foods, is converted by insulin into belly fat and, eventually into liver and pancreas fat

In the cases of Fatty Liver and Fatty Pancreas, the healing actions have to focus on decreasing internal toxicity and enhancing bile production and elimination

Diets for gallbladder disorders help to eliminate more liquid, alkaline bile and dissolve the gallbladder stones

Even mild attacks of pancreatitis and chronic pancreatitis require dietary changes. What to eat is as important as when to eat and how to eat

It is advised that a knowledgeable health care practitioner should customize a proper diet based on the Anti-Candida Diet, Alkaline Diet, Separation Diet Elimination/Discovery Diet and Metabolic Syndrome Diet for individual needs as described in this book

Chapter 32-Dietary Recommendations for the *Pancreatic Failure* Stage

For individuals lacking a medical background

Healing, and nutritional diets in the *pancreatic failure* stage are vitally important. There are numerous medical and commercial websites, books, and articles on this issue with recommendations that often oppose each other. To avoid discussion, criticism or judgments, the authors of this book share more than 40 years of experience working with chronic pancreatitis patients. Additionally, the authors use experience of European clinics that practice therapeutic nutrition.

Sorry to say, but the healing diet in the *pancreatic failure* stage may require the participation of the patient in his/her own clinical experiment. Everybody is unique; therefore, strict recommendations should be avoided. Additionally, what is beneficial for one patient can cause problems for another patient. Moreover, food that was tolerated before can eventually lead to worsening of the symptoms during the exacerbation of his/her conditions.

Possible diseases and conditions associated with *pancreatic failure* are the final stage of chronic pancreatitis, cystic fibrosis, liver cirrhosis and pancreatic cancer.

The goal of the healing diet in the *pancreatic failure* stage is to receive remission as long as possible. Remission is the decreasing of persistent abdominal pain, bloating, nausea/vomiting, fatigue, malady and malabsorption. In the *pancreatic failure* stage, significant fat malabsorption results in loose, greasy, floating, foul-smelling stools (called steatorrhea) that are difficult to flush.

The criteria of remission in chronic pancreatitis are improvements of the quality and frequency of the patient's stool and stabilization or weight gain

For individuals with a medical background

Therapeutic nutrition attempts to alleviate the *pancreatic failure* stage and is aimed to improve pancreatic and digestive function. In addition, therapeutic nutrition should help improve the secretory functions of the stomach, liver, and pancreas, eliminate the metabolic waste, reduce enteric fermentation and putrefactive processes in the gut and help with other metabolic and immune disorders. People with *pancreatic failure* also suffer from severe dysbiosis, metabolic acidosis, and deficiencies of essential nutrients.

Proteins, Fats and Carbohydrates in the Healing Diet

How can one in the *pancreatic failure* stage digest proteins, fats and carbohydrates, and how necessary are they?

In recent years, the content of protein in the diet for chronic pancreatitis is reviewed to a significant increase (up to 140-150 g/day). Previously, it was considered that the protein in the diet has to be reduced because protein enhances the activity of proteolytic enzymes (trypsin) and could provoke self-digestion.

Experimental and clinical observations have shown that, along with an increase in proteolytic activity, the dietary protein raises the activity of the inhibitor of trypsin, thus, decreasing self-digestion. Besides the diet, the body's alkaline reserve must be supplied with water, minerals, and bicarbonate to be restored, thus, increasing the alkalinity of pancreatic juice. Bicarbonate and minerals in the pancreatic juice also raise the activity of the inhibitor of trypsin and keep the pancreas from self-digestion.

It was also found that the lack of protein in the diet might damage the pancreas. In experiments, a low content of protein in the diet caused degenerative changes in the pancreas or lead to the development of chronic pancreatitis. On the other hand, the ability of protein to stimulate regeneration of the pancreas was also proven in experiments. Proteins' lipotropic factors such as methionine, choline and inositol prevent fatty liver and pancreas degeneration. In this regard, it is

important that 60-70% of proteins were of animal origin (lean meats, fish, lean chicken without skin, goat cheese, cottage cheese, eggs, etc.).

In 2006, professor Hugh James Freeman from the Department of Medicine (Gastroenterology), University of British Columbia, Vancouver, Canada wrote in article *Hepatobiliary and pancreatic disorders in celiac disease*, "atrophy, fibrosis and altered pancreatic function have been observed in experimental animals treated with diets deficient in protein, in adults with protein-energy malnutrition, in children with kwashiorkor and in some early autopsy studies of patients with celiac disease. In addition, pancreatic calcification has been reported with chronic protein malnutrition in the Indian subcontinent and in some African countries".[192]

Fats are strong activators of pancreatic secretion. Patients in the *pancreatic failure* stage usually poorly tolerate solid fats, especially from some animals (red meat, lamb, goose, duck, and pork meats). Fat previously used for cooking or frying, "trans fat" and margarines increase pain and malabsorption in chronic pancreatitis. Due to incomplete digestion of fats and developing steatorrhea, the amount of fat in the diet is limited to 60-80 g/day with preference of plant oil. Fresh avocados, fish oil, virgin, cold pressed nonprocessed olive oil and flax seed oil are beneficial choices because they may contain some natural digestive lipase and lipotropic factors. A small amount of butter may be used, as well.

Cold pressed, virgin, organic coconut oil has exceptional properties, which make it a preferred for individuals with *pancreatic failure*. Coconut oil is unique because it is composed predominately of medium-chain fatty acids (MCFA). MCFA are easily digested, absorbed, and used to nourish the body. MCFA provide an expedited energy use to increase healing properties and cause minor strain on the digestive system.

Coconut oil provides a quick and easy source of nutritional fats without demanding the pancreas to produce much digestive lipase. For this activity, coconut oil is used medicinally in specific food preparations for those who suffer from digestive disorders and have trouble digesting fats. Another advantage of coconut oil is that it is a safe, natural antifungal and anti-yeast substance. This function of the coconut oil is extremely beneficial because *pancreatic failure* usually combines with severe Candida-yeast overgrowth and SIBO.

Goat milk can also be carefully eaten. Milk from goats contains many other nutrients than cow milk. For example, goat milk has greater amounts of nutritious short-and medium-chain fatty acids, and it is usually produced on small farms, free of antibiotics and growth hormones (but read the labels regardless). Homemade goat cheese is a good source of natural digestive enzymes, probiotics, medium-chain fatty acids, lipotropic factors, and proteins.

It is advisable, to limit the amount of carbohydrates (up to 350-400 g/day). Metabolic or endocrine pancreatic function disorders (diabetes) require additional restrictions on

carbohydrates in the diet (150-200 g/day). Carbohydrates should be consumed as complex carbohydrates such as slow thermos cooked buckwheat, quinoa or oatmeal. Some patients in the *pancreatic failure* stage without sensitivity to gluten may eat whole grain or even white flour toasts for their energy needs.

Some Dietary Advices in the *Pancreatic Failure Stage*

Dealing with Acute Exacerbation

Within 1 - 2 days after acute exacerbation of the disease, the person requires complete abstention from eating solid foods and must drink plenty of fluids. Patients are allowed to sip unsweetened herbal warm tea (chamomile, peppermint, rose hips, licorice, etc.), water, or a mineral formula that is used to replace fluid in dehydrated children. Small amounts of stevia can be added as needed to provide a pleasant taste.

To obtain a favorable, alkaline effect of healing mineral water, one may start drinking ½ cup of warm Karlovy Vary Healing Mineral Water four times daily. This can be increased to 4 cups daily under the control of saliva and urine pH. Saliva pH and urine pH have to exceed 6.6. The total amount of fluid can reach 8-10 cups or more daily. Vomiting of clear fluid is not a signal to stop rehydration. In many cases, it is an attempt by the organism to eliminate toxins, and after vomiting, one can feel better.

Later, meals are allowed with a gradual expansion of the amount of food. 6 small feedings of blended foods are preferable. The authors recommend, to reduce the burden on the weak pancreas, to follow a separate diet where one food product is consumed at a time.

The raw vegetables are poorly tolerated at this time. The most ideal way to start vegetables is by organic vegetable soup (potato, carrot, zucchini, onion, pumpkin, okra, parsley, dill, etc.). Liquid soup puree is preferable. Afterward, oats, buckwheat, quinoa, rice, coconut oil, minced boiled lean chicken and baby foods can be gradually added to the vegetable soup.

a. After Lessening of Exacerbation, the Diet Regime May Be Expanded if Tolerated

Bellow, there are some dietary advices that may be helpful in the *pancreatic failure* stage.

Products and meals, which are allowed or excluded

Soups

Allowed: vegetable soup with pureed potatoes, carrots, squash, onion, pumpkin, and with other ingredients such as oats, buckwheat, quinoa and brown rice with 1 teaspoon of coconut or olive oil. Soup should be blended

Excluded: Meat, fish broth, mushroom broth, milk soups, cabbage, beets soup

Meat and Poultry

Allowed: Boiled lean beef, veal, chicken, turkey (minced, blended or chopped), meat freed from fascia, cartilage, tendons or fat bird - from the skin

Excluded: fat-rich, duck, goose, pork (in fried, stewed, grill, smoked, cooked form), sausage, canned food

Fish and Seafood

Allowed: boiled lean fish chopped or blended after cooking

Excluded: fatty, spicy, fried, smoked, salted, canned fish, caviar, shrimp, other seafood

Dairy Products

Allowed: goat milk, homemade goat cheese, plain organic milk yogurt or kefir with living probiotics, homemade cottage cheese. Instead of cow, use coconut or rice milk

Excluded: nonfermented, high-fat dairy products, half-and-half, whipping cream or milk products with sugar or fruits added, ice cream, sweet cheeses (sharp, spicy, greasy)

Eggs

Allowed: raw or soft-boiled (1-2 minutes) eggs. Can be mixed with vegetable blends

Excluded: hard-boiled, fried, scrambled eggs, omelets

Oils

Allowed: cold pressed, virgin oils such as coconut oil, olive oil, flax seed oil, avocado oil, fresh organic avocado

Excluded: animal fats, hydrogenate oils, 'trans fat'

Grains, Cereals, Bread

Allowed: slow thermos cooked quinoa, buckwheat, oatmeal, brown rice (overcooked, boiled)

Excluded: white flour, cornmeal, white bread, sandwiches, buns, rolls, bagels, white rice, flour tortillas, grits, noodles, pasta, pretzels, grain products mixed with sugar, milk, fruits, muesli

Fruits

Allowed: blended ripe soft, nonsweet fruits and blueberries, pureed raw or baked apples

Excluded: very sweet or unmashed raw or dry, canned, processed, sugar added fruits and berries. Grapes, figs, and dates with skin are not recommended

Sweets

Allowed: stevia

Excluded: sugar, chemical sugar substitutes, chocolate

Drinks

Allowed: Karlovy Vary Healing Mineral Water, purified water without ice, green tea with lemon, herbal teas (chamomile, peppermint, licorice, rose hips, fennel with stevia, etc.), fresh squeezed diluted vegetables or fruits juices

Excluded: soft drinks, sodas, sparkling water, cold drinks, alcoholic beverages, sweet drinks, coffee, cocoa

Spices

Allowed: ginger, turmeric (small amount), parsley, dill

Excluded: peppers, mayonnaise, ketchup, sauces

To summarize:

1. All foods need to be organic and preferred homemade
2. Better to start with a mono and separate diet: eat one kind of food at one time
3. Eat every 3-4 hours in small portions
4. Food needs to be blended, liquid, mashed, pureed and chewed a minimum 30 times to mix with saliva
5. Total fluid input has to be more than 2 liters daily: warm Karlovy Vary Healing Mineral Water, Biotherapy Pancreatic Herbal Formula - herbal tea, and plain and purified water. However, vegetable blends and soups are not to be counted as fluids

There is more information in this subject on chapter 47.-Healing Program for *Pancreatic Failure* Stage

The authors strictly recommend that all dietary changes in the *pancreatic failure* stage have to be supervised by a knowledgeable medical professional

Interesting facts at a glance:

Healing, and nutritional diets in the *pancreatic failure* stage are vitally important

The goal of the healing diet in the *pancreatic failure* stage is to obtain remission as long as possible

The criteria of remission in chronic pancreatitis are improvements of the quality and frequency of the patient's stool and stabilization or weight gain

It must take into account that people with *pancreatic failure* also suffer from severe dysbiosis, metabolic acidosis and deficiencies of essential nutrients

The content of protein in the *pancreatic failure* stage can be relatively high (up to 140-150 g/day). It is important that 60-70% of proteins were of animal origin (lean meats, fish, lean chicken without skin, goat cheese, cottage cheese, eggs, etc.)

The amount of fat in the diet is limited to 60-80 g/day with preference of plant, nonprocessed oil such as coconut oil, olive oil, flax seed oil, avocado oil, fresh, organic avocado

The amount of carbohydrates in the diet is up to 350-400 g/day. Carbohydrates should be consumed as complex carbohydrates such as slow thermos cooked buckwheat, quinoa or oatmeal

The raw vegetables are poorly tolerated in the *pancreatic failure* stage. The perfect way to start vegetables is by organic vegetable soup. Liquid soup puree is preferable

Total fluid input has to be more than 2 liters daily including warm Karlovy Vary Healing Mineral Water, herbal tea and plain and purified water

A mono and separate diet with eating every 3-4 hours of the small portions are better tolerated

All foods need to be organic and preferred homemade



This is the end of the **Part II: HEALING FOOD IN THE DIGESTIVE (PANCREATIC) AND METABOLIC DISORDERS of the e-book version of the **HEALTHY PANCREAS, HEALTHY YOU****

Other parts are:

Part I: STRUCTURE, FUNCTION AND DISORDERS OF THE PANCREAS

Part III: HOW TO IMPROVE THE EXOCRINE PANCREATIC FUNCTION, POSTPONE PANCREATIC DETERIORATION, AND HEAL DIGESTIVE (PANCREATIC) DISORDERS

References

These two interrelated parts focus on the development pancreatic disorders and non-drug approaches for *acidic pancreas and bile*, *pancreatic deficiency* and *pancreatic failure* stages of the exocrine pancreatic deficiency.

Contents of entire **HEALTHY PANCREAS, HEALTHY YOU** book can illustrate the topics of the other parts.

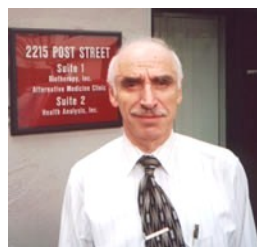
About the Authors



Felix Melamed, LAc, MSTCM, CHt received a bachelor's degree in biology and psychology from Notre Dame de Namur University before pursuing a master's degree in Traditional Chinese Medicine from the Academy of Chinese Culture and Health Sciences in Oakland, CA.

Mr. Felix Melamed is the author of a book "*Natural European Way of Whole Body Cleansing*" and numerous articles on diagnosis and treatment in Holistic and Traditional Chinese Medicine. He is currently in a private practice as an Executive Director of Biotherapy Alternative Medicine Clinic in San Francisco, California specializing in acupuncture, herbal medicine, clinical hypnosis, healing mineral water and detoxification modalities.

Felix Melamed is a composer and musician, author of 4 CDs of his songs and compositions. He is married and has a son. Information is available on his web site <http://www.biotherapy-clinic.com/>.



Peter Melamed, PhD received his medical education first as a registered nurse and then as a medical doctor in USSR. He took specialized training in anesthesiology, intensive care, and internal medicine. Working as a physician he became interested in holistic healing through his clinical experience with herbs, acupuncture, healing mineral water and internal cleansing. He was granted a license to practice acupuncture in Russia in 1978, and from that time, he combined conventional Western medical treatment with herbs, acupuncture, and other nondrug healing therapies.

In 1975, Peter Melamed established Biotherapy as a natural holistic approach to healing. Biotherapy combines the wisdom of traditional Russian folk medicine, ancient Oriental medical therapies, and European naturopathy with cutting-edge Western technology.

After immigrating to the USA and passing CA and NCCAOM exams, Peter Melamed succeeded in starting up a private practice in 1996 at the Biotherapy Alternative Medicine Clinic of San Francisco Bay Area. He developed unique herbal remedies, acupuncture, magnet, cleansing, techniques, outpatient withdrawal from drugs and alcohol, drinking healing mineral water, etc.

Peter Melamed, PhD is the author of a book “Natural European Way of Whole Body Cleansing” and numerous articles about nondrug treatment in Holistic and Alternative Medicine in English and Russian.

He is married and has three children and six grandchildren.

Information is available on his web site <http://www.biotherapy-clinic.com/>.

Chapter 7-Biotherapy Functional Clinical Classification of Exocrine Pancreatic Disorders

From **Part 1** of e-book **Healthy Pancreas, Healthy You**.

For individuals with a medical background

There are no classifications of pancreatic diseases that may satisfy and unify all specialists. All classifications make sense and are getting practical if they help primary care physicians or medical practitioners to postpone the development of the final stage of the pancreatic (digestive) disorders, the conditions when medical approaches usually are narrowed, and possibilities for treatment are restricted.

Most chronic diseases and disorders, particularly gastrointestinal problems, have three stages of development: functional (reversible), structural (partially reversible), and final (nonreversible) stage. Special medical literature does not have any terms for functional pancreatic disease. Therefore, there are no prevention and treatment options.

Principally, digestive disorders vitally depend upon the proper amount and quality of the pancreatic juice and bile. All digestive diseases have common often-overlapping symptoms such as low appetite, belching, heartburn, gas, abdominal distention, cramps, abdominal pain, diarrhea, constipation, etc. Nearly all of these symptoms depend on poor digestion of food due to a low amount and quality of pancreatic juice and bile. Evaluation of the common digestive symptoms may show the level of pancreatic deficiency.

It is very difficult to diagnose the first stages of the exocrine pancreatic deficiency by common tests. Using clinical testing, evaluation of the digestive symptoms may assume the percentage of pancreatic involvement, the level of the damage and the stage of the exocrine pancreatic deficiency.

Prevention and treatment of the gastrointestinal disorders is usually focused on the hollow digestive organs such as the stomach and small and large intestines. This focus doesn't really cover the pathogeneses of most diseases and disorders of the GI tract. Clinical tests and autopsy dates suggest that exocrine pancreatic diseases and certainly chronic pancreatitis are more common than previously believed both in diabetic and non-diabetic individuals. Some experts indicate pancreatic involvement in 10% - 13% of a "normal" population.[51, 52, 53]

Most classifications, diagnostic and treatment techniques center on the late stage of this malady with severe pain, steatorrhea and malabsorption. Special medical literature and textbooks refer to these conditions as "pancreatic insufficiency". These symptoms occur when only 10 % of exocrine pancreatic function is left. This is not an "insufficiency." This is pancreatic "failure" when the therapeutic opportunities are very limited.

The authors conclude that the pandemic of digestive disorders are strictly interrelated with pandemics of metabolic acidosis and intestinal dysbiosis. The main organs, which suffer from these conditions, are alkaline digestive glands – the liver and pancreas, and subsequently their secretions: pancreatic juice and bile. Acidification of these fluids changes their digestive capability and triggers the majority of gastrointestinal disorders.

The final stage of chronic pancreatitis does not develop overnight. There are usually 8 - 15 years between the first attack of acute pancreatitis and pancreatic failure after chronic pancreatitis. Similar to disorders of many other organs and systems, the pancreas initial diseased stage does not display any structural changes. However, after this stage, long-standing biochemical, neurohumoral, and inflammation factors lead to structural changes of the pancreas (chronic pancreatitis) and lowering the exocrine pancreatic function while developing many accompanying digestive diseases.

Unfortunately, these diseases deteriorate the exocrine pancreatic function causing many vicious circles. Thanks to human physiology, the pancreas has an enormous 90% functional capacity. However, when this capacity is depleted, the pancreatic failure occurs with steatorrhea, and malabsorption syndrome, resulting in a total crush of the digestive system and consequently of the whole human organism.

Putting into account that the pancreas is a key digestive organ, the authors propose a practical functional clinical classification of exocrine pancreatic disorders, which involve most of the gastrointestinal disorders and diseases. This functional clinical classification may assist primary

care physicians, gastroenterologists and many health professionals in their everyday practice. This clinical classification may help a large number of patients suffering from gastrointestinal disorders to get help in either the early or compensated stages of their condition to avoid pancreatic failure.

Biotherapy Functional Clinical Classification of Exocrine Pancreatic Disorders subdivides all digestive disorders and diseases into three groups.

1. *Acidic pancreas and bile*

2. *Pancreatic deficiency*

3. *Pancreatic failure*

Biotherapy Functional Clinical Classification of Exocrine Pancreatic Disorders takes the common digestive symptoms such as pain, gas, stool, and food sensitivity along with their frequency, quality and changes with a combination of common clinical medical diagnoses and tests.

In everyday medical practice, the crowds of individuals with digestive symptoms consist of patients with the *acidic pancreas and bile* stage of exocrine pancreatic disorders. Their tests are usually normal and most of these patients receive palliative symptomatic therapy. The authors consider and try to prove that the acidifying of alkaline digestive glands (pancreas and liver) decreases digestive capacity of pancreatic juice and bile.

Acidifying also makes these fluids corrosive and “aggressive”. This, in turn, causes a large number of pathological refluxes. Improperly digested food is collected and fermented inside. Then, the improperly digested food irritates the walls of the digestive organs causing gas, belching, bloating, abdominal cramps and pain, ulcers, constipation, etc. To eliminate this toxic undigested food, the GI tract has only two openings: the mouth and anus. Nausea, vomiting, and diarrhea are natural detoxification reactions to poor digestion.

Nowadays, a pandemic of interrelated metabolic acidosis, low pancreatic function, and intestinal dysbiosis make a vicious circle and aggravate the clinical digestive symptoms picture.

Restoration of the normal acid – alkaline balance by diet, drinking Karlovy Vary healing mineral water and using some botanicals and food supplements have helped many Europeans with different kinds of digestive problems for a hundreds of years. No doubt, it can be helpful for many Americans as well.

I. *Acidic pancreas* (usually combines with *acidic bile*)

Symptoms are reversible:

Pain: infrequent abdominal cramps after heavy meals or alcohol intake

Gas and bloating: occurring frequently after heavy, fatty/protein and starchy/ sugary mixed meals

Belching: frequent after heavy, fatty/protein and starchy/ sugary mixed meals

Nausea/Vomiting: rarely

Heartburn: frequent after heavy, fatty/protein and starchy/sugary mixed meals

Stool: tendency to constipate while alternating with constipation/loose stool

Deficiencies of the following nutrients: bicarbonate, minerals, trace elements, vitamins, natural enzymes, probiotics, etc

Food Sensitivity: possible to milk and wheat

Weight: tendency to gain weight and belly fat

Well-being: Most people consider themselves practically healthy and rarely have “sick-days”

The ability to obtain the pancreas histology is limited so an early diagnosis of the pancreatic disorders is often misdiagnosed. Imaging and conventional blood tests usually don't reveal any abnormalities in the functional *acidic pancreas and bile* stage.

Some helpful diagnostic approaches:

- Checking the pH of saliva and urine at a minimum of once per week to verify a tendency toward metabolic acidosis
- Undertaking a *Comprehensive Stool Analysis*
- Undergoing a hydrogen breath test, metabolic panel test and liver panel test

Possible diseases and conditions associated with acidic pancreas and bile stage: functional dyspepsia, biliary dyskinesia, GERD, Sphincter of Oddi Dysfunction type III, IBS, Intestinal Dysbiosis (Candida-yeast overgrowth), metabolic syndrome, etc.

II. Pancreatic Deficiency

Symptoms are steady with a tendency to exacerbate, but can be reversed to the stable remission:

Pain: attacks of abdominal pain and cramps mostly in the epigastria area. Intermittent pain may last from hours to days. May be worsened by eating or drinking alcohol

Gas, bloating: frequent after heavy, fatty/protein and starchy/ sugary mixed meals

Belching: often after heavy, fatty/protein and starchy/ sugary mixed meals

Nausea/Vomiting: can accompany the abdominal pain

Heartburn: often after heavy, fatty/protein and starchy/sugary mixed meals

Stool: tendency to constipate while alternating with constipation/loose stool. Sometimes stool may be pale or clay-colored

Deficiencies of the following nutrients: bicarbonate, minerals, trace elements, vitamins, natural enzymes, probiotics, etc

Food Sensitivity: many food intolerances

Weight: more or less stable with a tendency to gain weight and develop belly fat

Well-being: Fatigue, low energy, depression and insomnia and often complaints of “sick- days”

Possible diseases and conditions associated with pancreatic deficiency: clinical or subclinical episodes of acute pancreatitis, chronic pancreatitis, GERD, gastritis, gastric ulcers, duodenal ulcers, duodenitis, Sphincter of Oddi Dysfunction type II or III, gallbladder disorders (inflammation, stones, sludge, parasites), conditions post gallbladder removal and some surgeries on the upper GI tract, considerable intestinal dysbiosis (Candida-yeast overgrowth, Small Intestine Bacterial Overgrowth), intestinal parasites, IBD (Crohn’s Disease, Ulcerative Colitis), Celiac Diseases, Cystic Fibrosis (early stage), Diabetes, alcohol abuse, some acute and/or chronic poisoning etc.

Some diagnostic approaches:

- Checking the pH of saliva and urine at a minimum of once per week to verify a tendency towards metabolic acidosis
- Undertaking a *Comprehensive Stool Analysis*
- Undergoing blood tests such as serum amylase, lipase, trypsinogen, liver and metabolic panels, etc.
- Undergoing hormone tests such as the secretin stimulation test, the cholecystokinin (CCK) stimulation test and the combined secretin-CCK stimulation test
- Undertaking other various tests such as the intraductal and endoscopic secretin stimulation tests, Stool tests such as fecal fat test, fecal elastase, fecal chymotrypsin, etc. Imaging tests such as the abdominal ultrasound, abdominal CT scans, X-ray, magnetic resonance cholangiopancreatography (MRCP) are frequently employed in the initial diagnostic workup of chronic pancreatitis and other pancreatic disorders. When results of standard noninvasive imaging tests are negative, endoscopic ultrasound (EUS), or endoscopic retrograde cholangiopancreatography ERCP offer improved sensitivity for early disease.

III. Pancreatic failure

Symptoms are steady and considerable with a tendency to develop frequent exacerbations and aggravation of the pancreatic failure condition:

Pain: persistent 80-90% abdominal pain in the middle of the abdomen mostly in the epigastria area with irradiation to the back. Pain is triggered by food or by alcohol intake

Gas, bloating: constant

Belching: often constant

Nausea/Vomiting: nausea/vomiting can accompany the abdominal pain

Heartburn: can occur

Stool: Significant fat malabsorption results in loose, greasy, floating, foul-smelling stools (called steatorrhea) that are difficult to flush. Stool may be pale or clay-colored

Deficiencies of the following nutrients: usually proteins, fats, fat soluble vitamins (A, D, E, K), vitamin B-12, foliate, bicarbonate, minerals, trace elements, vitamins, natural enzymes, digestive enzymes, probiotics, etc

Food Sensitivity: fat and glucose

Weight: unintentional weight loss and malnutrition

Well-being: exhaustion, significant depression and disablement

Possible diseases and conditions associated with pancreatic failure: final stage of chronic pancreatitis, Cystic Fibrosis, liver cirrhosis, cancer, etc.

Today, conventional medicine, doctors and other health professionals, have not established therapeutic methods for improving the exocrine pancreatic function and property of bile. Therefore, the primary focus of Part 3 of this book is the healing actions related to ***acidic pancreas and bile*** and ***pancreatic deficiency***, the reversible or partially reversible conditions. However, some recommendations and natural non-drug approaches may be useful for improving the quality of life of individuals with **pancreatic failure**, as well.
